PROGRAM OF STUDY

BSc (Hons) in Computing and Information System (CIS)

COURSE CODE: CIS 499

PROJECT TITLE: HOUSEHOLD WORKER HIRE MANAGEMENT

A dissertation submitted to the Department of Computing and Information System (CIS), Daffodil International University (DIU) for the partial fulfillment the degree of BSc (Hons) in CIS.

Semester: FALL 2019

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APPROVAL

This Project titled **"Household Worker Hire Management"**, Submitted by **MD. IBRAHIM KHALIL**, ID No: **182-16-326**to the Department of Computing & Information Systems, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computing & Information Systemsand approved as to its style and contents. The presentation has been held on **29-12-2019**.

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DECLARATION

I hereby declare that, this project has been done by me under the supervisor of **Sarwar Hossain Mollah,** Assistant Professor & Head of the department of CIS of Daffodil International University. It is also declared that neither this project nor any part of there has been submitted anywhere else for the award of any degree, diploma or other qualifications.

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Acknowledgement:

All the praises be to Allah because He give me the strength to do this project and finally write up to outcome report leading towards the fulfillment of BSc (Honors) in Computing and Information System (CIS) degree.

I want to thanks to my most respected teacher and project supervisor **Sarwar Hossain Mollah,** Head of the Department of CIS, Daffodil International University. He supervised me very well; give inspiration, proper guideline and his valuable time. Without his proper instruction I cannot complete all research and implementation of this project.

I also thanks to my family member and my department's others teacher. During my project work they provide great support to me. Also I would like to thanks my senior brothers from my department; they also give me proper guideline to do this project.

Again, I am so grateful to Allah, for this entire project work and this report.

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Dedicated

To

My Beloved Parents

Executive Summary:

This project is about for hire different types of worker for household work. Any company who wants to do business with worker on online they can easily use this system and can manage the worker hire information and schedule dynamically. “Household Worker Hire Management” going to developed to house owners to minimize their troubles for tiny type’s home works. People of Bangladesh especially city people of Bangladesh can hire worker for their house work by register themselves in this system by using their National Identity Card (NID) no. Company easily can create any category of worker and set their schedule in this system, this will be dynamically updated after every hire. Company admin can handle all things and manage the data of worker and hire information easily.

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Chapter – 1: Introduction

- Initial Description of The Total Project
- Document Context

1.1 Initial Description of the Project

In present world people are becoming smarter because of technology. Lives in world are now becoming easy for technology. People do work in seconds, they are involved with lot of work, and they love multi-tasking. As a result, we use digitalized dynamic system rather than manual process. Many countries use technology for their every day's work. In this century our Bangladesh uses more technology rather than previous. People doing shopping in online because it is much easier and this process decrease our valuable time and stress. For every work we use Internet via our devices like mobile, laptop, tab etc. Website and browser are becoming more popular.

People feel more comfort when they do any work on online or get any service on online rather than manual process. For example – ticketing system, admission processes done through online via website. In other country people hire worker for their everyday work for house. For searching a worker manually is very hard process especially in city life as like Dhaka city. When we hire a worker manually lot of problem can be arising – security, schedule, information, timing etc. For that – **'Household Worker Hire Management'** system provide all the solutions to hire worker easily and handle all data of worker easily. Company can manage worker related all data and serve service to the customer and run their business.

1.2 Document Context of the Project

- **Chapter 1: Introduction**

  This chapter is about the explanation of the proposed system or project.

- **Chapter 2: Initial Study**

  In this chapter I have explained the aims of the project, its background and objectives find problems area and give the possible solution.

- **Chapter 3: Literature Review**

  This chapter is the discussion about problem domain and its solution, comparisons about related project in the world.

- **Chapter 4: Methodology**

  Here I have discussed about the chosen methodology with proper justification for doing this project.

- **Chapter 5: Planning**

  In this chapter I have provide the description about how I met the risk and manage it. Here tests plan, risk management plan is explained.

- **Chapter 6: Feasibility Study**

  For this project – economical, operational, technical and social feasibility are finding and explained it properly.

- **Chapter 7: Foundation**

  Here I have provided total project's process with proper diagram; explanation and problems area are identified.

- **Chapter 8: Exploration**

  In this chapter I have discuss about the existing system and boundaries.

- **Chapter 9: Engineering**

  Project engineering and activities part are described here.

- **Chapter 10: Deployment**

  Deployment technique, work and steps are described here.

- **Chapter 11: Testing**

  Testing of the projects features are provided with proof.

- **Chapter 12: Implementation**

  The implementation descriptions of the project are given here.

- **Chapter 13: Evaluation**

  Evaluations of the proposed system are measured here and give the description.

- **Chapter 14: Critical Appraisal**

  Here I have discussed about the critical appraisal of this project and describe that if the objectives met or not.

- **Chapter 15: Lesson Learnt**

  What I have learnt during doing this project and report – point out all of them.

- **Chapter 16: Conclusion**

  In the final chapter I have write a short summary about my project work, report and process.

Chapter – 2: Initial Study

- Project Proposal
- Background of the Project
- Problem Area
- Possible Solution

2.1 Project Proposal

2.1.1 Overview of the Project

In present word we lead very busy life in city. Every time we want to do our every day's work easily. That's why web based project become more popular day by day. People want to do work through cloud rather that manual or paper based work. In our city life especially in Dhaka (Bangladesh) – people face lot of problem for their household work. Many times people do not find any workers for tiny work like – electric switch problem, water pipe line problem, plumber, scavengers, housekeeping etc.

The proposed system named is "Household Worker Hire Management" going to developed to house owners to minimize their troubles for tiny type's home work. Generally home worker are low paid worker so we want to supply worker through system in low price. People of Bangladesh especially city people of Bangladesh can hire worker for their house work by register themselves in this system by using their National Identity Card (NID) no.

Home worker supplying company is the main responsible person for handle this system as he/she add or remove worker's information with their NID no for security and safety. Admin can manipulate different types of category of worker and workers working category, like – permanent/temporary. Admin can set the workers schedule, work location, time and their working rate. Admin can also manage customer's hire request dynamically and send mail confirmation. They set package or offering option for hire multiple workers at a time. Admin can manipulate user information and can block/delete user from the system.

People who want to hire worker for their household work they must need to register themselves in this system with required field and their NID no. But registration will fully have done after active the account by mail confirmation or confirm by admin of this

system. After that they can search worker by searching category or type they want. Customer can see worker's information, their skills area, their working experience, feedback about them and can hire specific worker by sending hire request. Customer can give feedback about the company/system or worker of the service providing company and can also send message for requesting other type or category or service – if the company can provide it or not. Customer also can pay worker's hiring cost efficiently in this system or can mark option for cash in delivery option. This system produces hiring report or information and downloads it as PDF document filtering by different criteria. System admin handle or manage all things from the background.

2.1.2 Defined Goals and Objectives of the Project

Goals of the Project:

- Effortless worker hires for house in city.
- Easily hire worker by web platform.
- Produce report generation or analysis from data center.
- Secure worker hire confirmation for home.
- Make online platform for manage worker information, schedule, working rate, available time etc.
- Give fully confidential data to the users of the system.

Objectives of the Project:

- The main objectives of this project is to confirm worker hire effortlessly by online.
- Easily search different types of worker or category's worker.
- Can hire different types of household worker in customer's own location.

- Complete web support for inexperience people so that they can easily visit this web application.
- Easily search workers schedule by filtering its category or type or place and confirm hire on this website dynamically.

2.2 Background of the Project

People hire worker for their work since the beginning in the world. For developing our life style we need more categories' worker for house, office and institute. Generally household worker work for very small amount for short time and do tiny work. Like Dhaka city – hire this type of worker manually is very hard because of payment, their working schedule, small payment, home security etc. Considering all of them – worker hire in Dhaka city is so hard. For that worker information and hire information by customer need to manage in hand.

So, "Household Worker Hire Management" system makes solution for managing the workers and hire related all data dynamically. This system produces proper reports and makes work easy. By using this system any company can run business with different types of categories worker based on market demand, they can create new categories worker if business field were changed. This system makes all type of solutions for hire different types of worker especially for small household work.

So, I have selected the name for proposed system - "Household Worker Hire Management". This project makes hire worker easy and minimize the management problem for hire household worker.

2.3 Problem Area

Though, Bangladesh grows their business and work on online but not so familiar with this kind of system. Bangladesh has more than 90 Million Internet user. But one survey says that around 20% people search worker in online and also people of Bangladesh is not so much familiar in e-commerce business in the world because of trust. So, customer trusted is one of the big problems. (Shahriar, 2018). In this project company wants supply different type of worker for house work. For house it would be risky for security. On the other hand, people want different scheduled worker and work time are updated after hire. So, schedule time is very much important in this system.

2.4 Possible Solution

After analyzing these problems, I identified that customer face lot of problem. So, management of the company needs to be loyal and keep workers' charterer certificate from their permanent area or Union. Company's authority will give authority certificate to the worker and it will be shown in the system so that customer will ensure the security about hiring worker. This will be needed if any occurrence will happen during doing house work. And the dynamic web system will handle the schedule problem. Customer wants in any time or scheduled worker will be solved through live conversation, chat or request section of the system.

Chapter – 3: Literature Review

- Discussion on Problem Domain
- Discussion on Problem Solutions
- Comparative Discussion on existing System
- Recommended Features for Proposed System
- Challenges to Build the Proposed Solution

3.1 Problem Domain

'Household Worker Hire Management' is like service provided company and its work is also similar type of job portal site or ecommerce site. By using this site people hire worker through Internet and can pay worker's payment through online. But this type of website is not so much familiar in Bangladesh because of security and other problem – website is not fulfilling the user requirements and quality worker is not provided correctly. In our country – Bangladesh Government give clearance to the country to run online payment. After that – ecommerce site become very popular in our country. Hiring or providing service in online is now more popular to our country. A person wants to give less effort and wants maximum output in any work specially by using Internet. Now our country's people can buy service or product in online through using credit card or debit card.

This system is about supply worker so security of worker is most important and this platform faces lots of problem to doing online business. Here I have identified some of them:

- Payment function is not fully developed in this system.
- Our country is not fully affordable with Internet connection
- Home security for provided worker.
- Govt. business policy or logic.
- Worker delivery tracking is still developing process.

3.2 Problem Solution

I have used ecommerce domain for manage this system. In present world ecommerce based business growing day by day and it is most popular business technique. All over the world billions of money transaction will happen in ecommerce site. But in present worlds it has lot of problem; here I have discussed some problem's solution for this project.

Worker's Quality: This site is about hiring worker for little work. Company will supply these workers. Company need to assign quality full worker in the system. And customer gives rating or feedback about the worker and other user will show that and they can find quality full worker for their need.

Trust about Website And Company: Trust is the most important things for doing online business. For that the company needs to make trusty site following transparent process. Customer information need to be kept with well privacy and need to track the worker delivery process by customer.

Security for Home Work: Worker work for home so security will be needed so that company need to kept their charterer certificate issued by local area chairman. If any occurrence will be happened company and the authority can take particular law or penalty about the worker.

Proper Identification of User: The customer who hire worker will need to be verify with different types of verification way – like: email verification, mobile number verification is need to be implement to prevent online fraud.

Internet Connectivity: Internet connection is very costly in many places in Dhaka city. Lots of syndicate works here. Government should take proper action to set up the internet price to make affordable net connection for all.

3.3 Comparative Discussion on Existing System

In the present world technology grow day by day. There are many similar kind of product, application; project is developed in different ways. Every project has some unique feature or idea. Every project's main target is making more useful system for the world. Now, I am going to describe about existing systems which are related with 'Household Worker Hire'.

I. Sheba.xyz (https://www.sheba.xyz/)

Sheba XYZ provides different type of services for in Bangladesh. Like – worker, car rent, bus ticket etc. They provide it home to home.

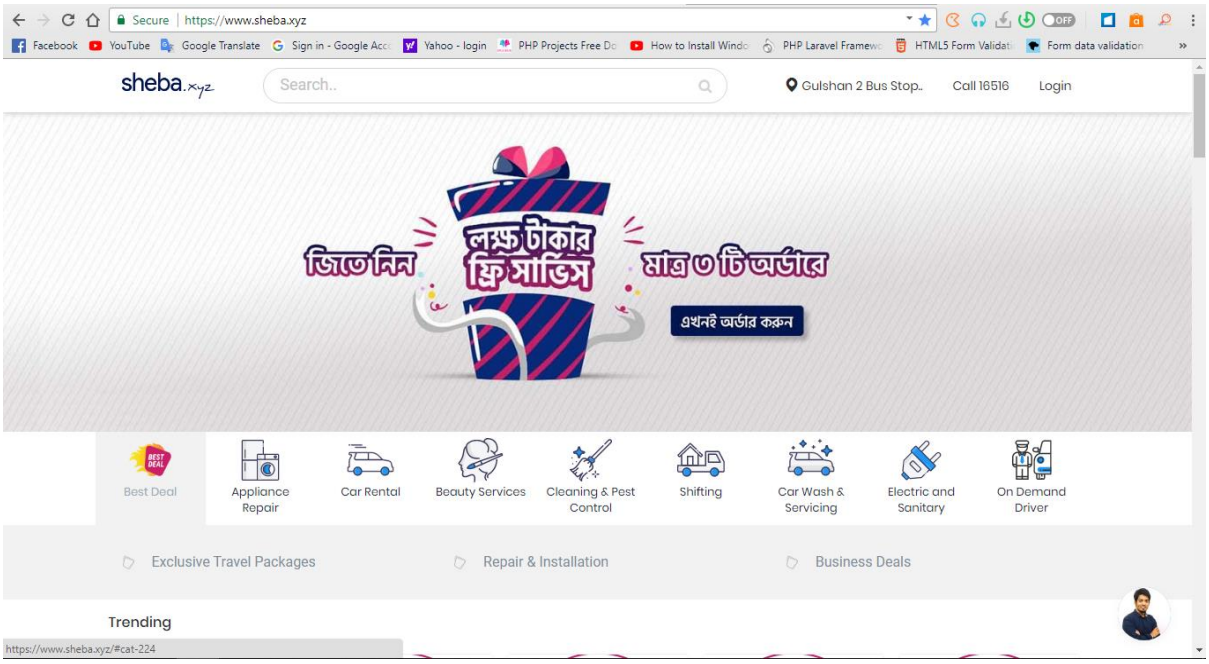


Figure 1: Interface of sheba.xyz

Best Features:

- Systems register and login process.
- Customer can add their desire services for checkout.
- When customer wants to hire a worker system connect with nearby service provide center and complete their confirmation.
- Payment methods are implemented in this system.

Limitations:

- Less informative and has no quality design in the system.
- There is no schedule maintained for worker's working time.
- Service provided company send workers without showing their information. So, security issues can be arising for house work.

II. Silver Swan (https://www.silverswanrecruitment.com/)

Silver Swan is the website for private household job in London. Here candidate can apply for household work and employers can select them after seeing their portfolio.

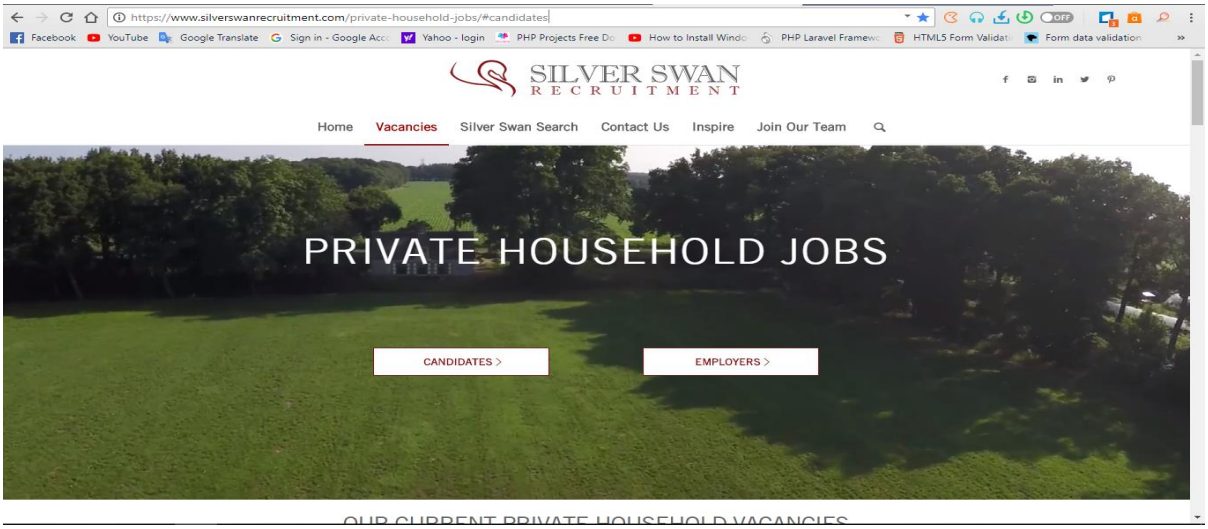


Figure 2: Interface of Silver Swan.

Best Features:

- Employer or Candidate can join the private household work team by using this system.
- Can register as employer or job holder.
- Can control personal account and can apply for work and employer post their requirements.
- Payment methods are implemented in this system.

Limitations:

- There is no schedule maintained for workers or candidates working time.
- Service provided companies are not included in this system. So, company need to handle all data.

III. New Zealand Labour Hire (http://www.nzlabourhire.co.nz/)

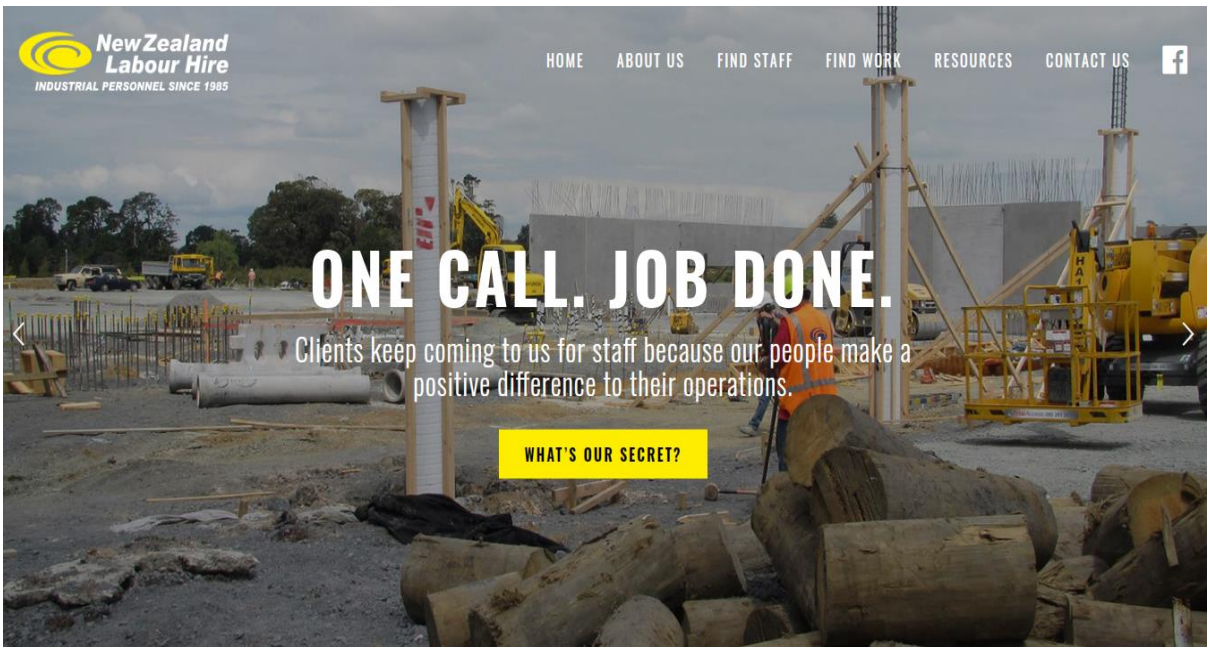


Figure 3: Interface of New Zealand Labour Hire.

Best Features:

- Easily can find job for any location of New Zealand.
- Find any specific staff of the company by sending request.
- Can make team of laborer or worker.

Limitations:

- User interface is not too good and cannot easily understandable.
- Not much dynamic system.
- No registration or tracking process in this system.

3.4 Recommended Approach for this System

System must be user friendly to perform well. I have found some features or approach this must need to be present in the proposed system to fulfill the project goals and user can easily interact with the system.

Worker Information:

- Worker's category should be implemented clearly.
- Available time, schedule, area are need to be implemented clearly.
- Worker's information need to be handled properly.

Admin Management:

- Proper handle on worker's category, need to able to create new category with business change.
- Worker's schedule and hiring information will be under control under admin.

Hiring Process:

- Hiring process need to be smooth, and schedule will be auto updated.
- Mail confirmation for successful hire.

Report Generation:

- Monthly hiring calculation with financial budget.
- Generate report on different successful hire.

3.5 Challenges to Build the Proposed System

I have to make completely a new system for worker hire. When I deploy this system I have to face new challenges to make the site. These are –

- I have to ensure that the access of the system is for all devices.
- I have to face the short time to develop this proposed system.
- Category and worker's schedule handle would be the most difficult things for this proposed system.
- Searching different types of category's worker is also hard work in coding.

Chapter – 4: Methodology

- What to Use and Why to Use
- Section of Methodology

Methodology monitors the project to develop the system with proposed budget, time and create better understanding between user and stakeholders for business. For making any system we must need to follow the software methodology. Here I have discussed about the chosen methodology for my proposed system.

4.1 What to Use and Why to Use

For developed the proposed system I have chosen DSDM (Dynamic System Management Method) atern under agile software methodology. I have chosen that because of it focuses on to create a system more dynamic within tight budget, limited time and it is focuses on iterative development continuously.

Main Ideology of DSDM Atern

DSDM cleared some idea or point about create a project successfully. These are –

- Focuses and define goal about proposed system.
- Using iterative development, it forces to early delivery of the product.
- Right deliverable products are chosen by using time boxes.
- End user and tester also involved with stakeholders during iterative development period of the project.

Suitability of DSDM atern for this Proposed System:

- Proposed system is run for business need so its need to be delivered within short time and budget and its requirement must be fulfilled. DSDM focuses on that and ensures the right requirements of business needs.
- MoSCoW prioritization defines the project requirement and time boxes define the right time delivery for this proposed system.

- Iterative development is the most important part for this part. By doing these stakeholders share their business logic and objectives and use it correctly in the project implementation.
- For this kind of big project proper handling is much needed and foundation need to be clear, and needs to understand the business logic by continuous communication.

Techniques of DSDM

There are lot of techniques are used in DSDM atern. Here I have provided the description some of them:

I. MoSCoW Prioritization:

Must Have	This part identifies the main requirements of the project which are must needed to fulfill the proposed goal.
Should Have	This part identifies the requirements which are not must needed but these can be making better of the proposed system.
Could Have	This part identifies the requirements which are not must needed but may be need in the system and it may make project well defined.
Won't Have	This part is used to identify the features or function which are not to be developed for this project and which are not related with this project.

II. Time Boxing:

Each time box set a time for completes the defined work and list out which part comes after. Also it defines:

- ✓ Time duration of the project.
- ✓ Each parts duration of implementation.
- ✓ Break down works and defines the sub work of a process.

III. Iterative Development:

DSDM allow iterative development for each stage. So, previous stage can be reviewed with this way. Iterative developments main phase and works are:

- ✓ Project tasks identification.
- ✓ Making plan to complete these tasks.
- ✓ Evaluate the solution of the work.
- ✓ Checking again it in review section and measure the tasks.

4.2 Section Methodology

Here I have provided the description of the section of DSDM methodology. It is under 5 sections (with 7 phases). These are:

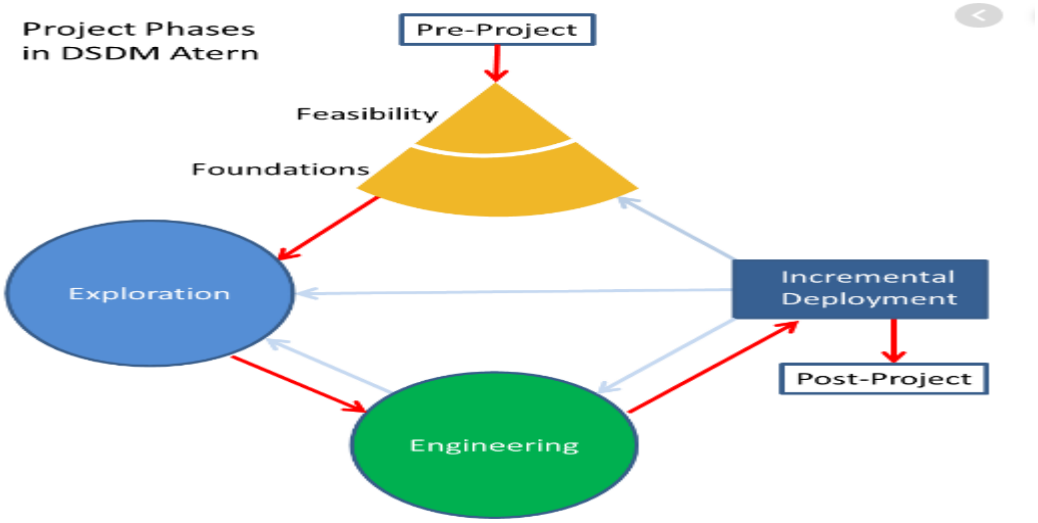


Figure 4: 5-Section of DSDM Atern.

- **Pre-Project:**

  In this phase project proposal are made and make the plan of doing project. Resource, project related study, measurement of requirements is done in this phase.

- **Feasibility:**

  Feasibility studies evaluate and consider the project economic, technical, operation condition and phase. By doing this measure if project will successful for our or not.

- **Foundation:**

  After analyzing initial things, the development is started for stand the foundation. Project's main works are started with this part.

- **Exploration:**

  Here, project's main requirements and features are identified and setting its prioritization with MoSCoW prioritization techniques.

- **Engineering:**

  This phase is about iterative development and how its runs with the project and testing and evaluation of the features are involved in engineering part.

- **Development:**

  Proposed system is completed in this phase. Create the system will all requirements in development section of the project.

- **Post-Project:**

  Project documentation and system will hand over by arranging a program and in this phase we measure the benefits and its features.

Chapter – 5: Planning

- Project Plan
- Test Plan
- Risk Management Plan
- Quality Methodology Plan

5.1 Project Plan

Panning is the essential part for doing any work. Specially doing this kind of project – making plan is very important. Plan defines the requirement, break down the work into process and make easy to understand the business need. So, developer understands easily and implements it properly, (Aston, 2017). Here I will discuss about some process and section how the plan has done for this project.

5.1.1 Work Break down Structure (WBS):

Here I have break down project works into tasks and sub tasks with the time duration. Technical and development team will easily understand what to do and when to do. By following this chart project implementation will be easy.

Tasks	Duration	Starting	Ending
01. Initial Work of Project Research about Products. Comparison with similar type of products. Note down the features and limitations.	3 Days	Thu 10/17/2019	Mon 10/21/2019
02. Project Proposal Creation Make the project proposal document and get feedback from supervisor. Identify the core features.	5 Days	Tue 10/22/2019	Mon 10/28/2019
03. Analysis of the Proposed System Market research of the system. Make plan how to complete the project.	6 Days	Tue 10/29/2019	Tue 11/05/2019
04. Making Design Drawing diagrams of the system. Making Database. User Interface Design of the System.	9 Days	Wed 11/06/2019	Sat 11/16/2019
05. Deployment of the Project Working on Code of the project. Build the proposed features.	16 Days	Sun 11/17/2019	Fri 12/06/2019
06. Testing of the System Involve user for test the system. Arrange session for testing features.	8 Days	Sat 12/07/2019	Tue 12/17/2019
07. Documentation of the Project Make documentation for making understand and further development of the project.	5 Days	Wed 12/18/2019	Tue 12/24/2019
08. Summation of Final Project Binding book, approve it from professionals.	4 Days	Wed 12/25/2019	Sun 12/29/2019
Total Time (Days)	**56 Days**		

Figure 5: WBS for this Project.

5.1.2 Resource Allocation

This part is about defines the project's working time schedule, duration of each part to be done. And identify who will be the involve person for resource allocation. This is one of the important part for planning of the project. This chart or schedule is properly maintained for making a project successfully.

No.	Tasks	Duration	Resource Name
01	Introductions	3 Days	Analyst
02	Initial Study	5 Days	Analyst
03	Literature Review	1 Days	Analyst
04	Methodology	2 Days	Analyst
05	Planning	5 Days	Analyst, User
06	Feasibility	4 Days	Analyst, Developer
07	Foundation	5 Days	Analyst, Developer
08	Exploration	3 Days	Analyst, Developer
09	Engineering	4 Days	Analyst, Developer
10	Deployment	8 Days	Developer Team, Tester Team
11	Testing	4 Days	Tester
12	Implementation	6 Days	Analyst, Developer
13	Evaluation	1 Days	Analyst, Developer
14	Critical Apprisal	1 Days	Analyst, Developer
15	Lesson Learned	1 Days	Analyst
16	Conclusion	1 Days	Analyst, Developer, Tester
Total		56 Days	

Figure 6: Resource Allocation Chart for this Project.

5.1.3 Time boxes

In DSDM atern project work are done into iterative development process. Time boxes define and hold the process work. I divided each time box under four parts or process of this project work. It is allocating on different types of resource name. Here I am given this chart:

Time Boxes	Tasks Name	Resource Name
T - 01	Introductions	Analyst
	Initial Study	Analyst
	Literature Review	Analyst
	Methodology	Analyst
T - 02	Planning	Analyst, User
	Feasibility	Analyst, Developer
	Foundation	Analyst, Developer
	Exploration	Analyst, Developer
T - 03	Engineering	Analyst, Developer
	Deployment	Developer Team, Tester Team
	Testing	Tester
	Implementation	Analyst, Developer
T - 04	Evaluation	Analyst, Developer
	Critical Apprisal	Analyst, Developer
	Lesson Learned	Analyst
	Conclusion	Analyst, Developer, Tester

Figure 7: Time Boxes of this System.

5.1.4 Activity Network

This is a graphical presentation for showing the elements sequence of the project work and defines the relationship of activity and shows that which work will be done one after another. Here I have given the activity diagram for **"Household Hire Management System".**

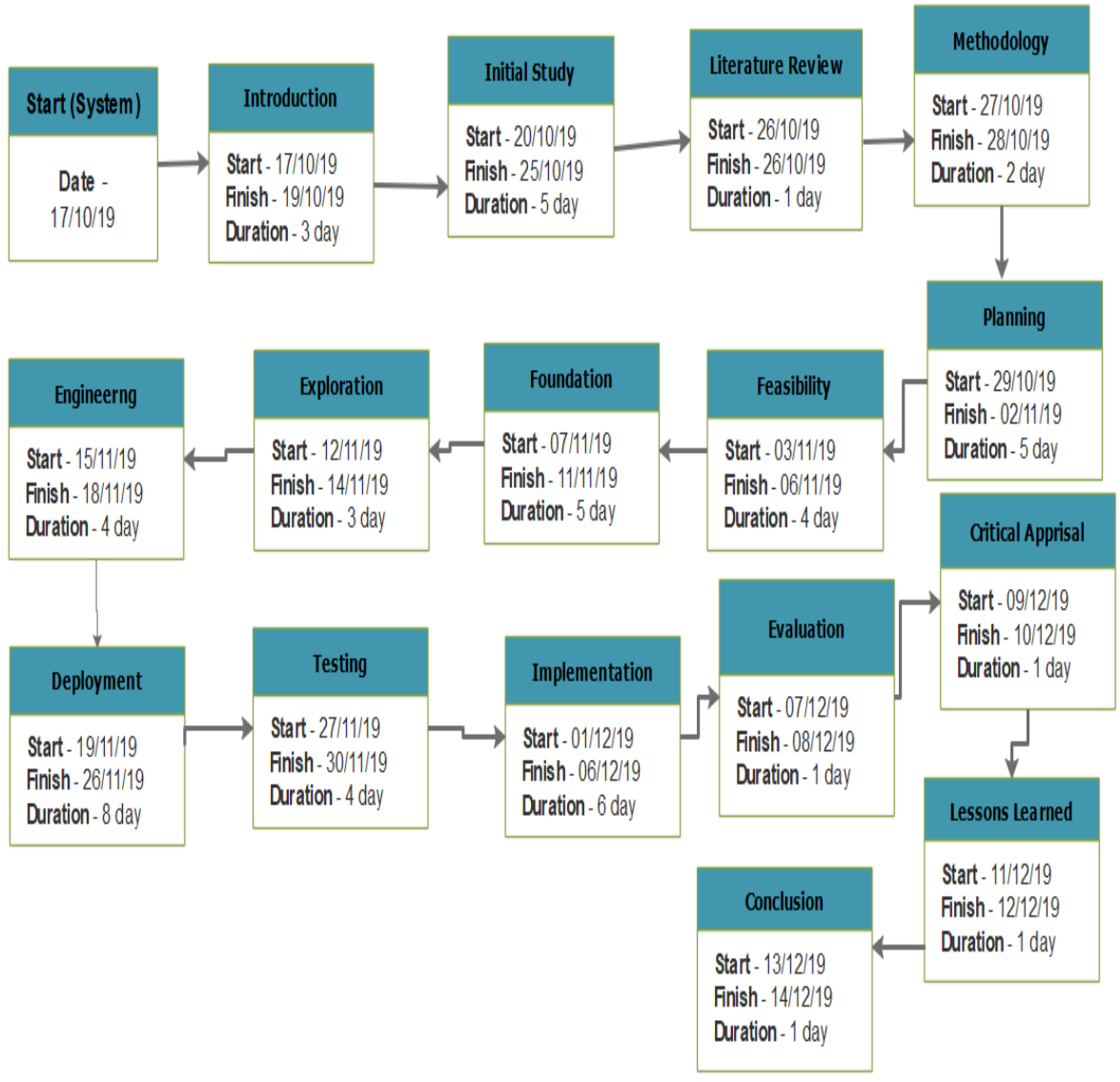


Figure 8: Activity Network Diagram with Subtask.

5.1.5 Gantt Chart

This is the visual presentation of the work break down structure of the project work. Which part or tasks are done in which range of time – it shows that. From the staring time of the task to end time every task or sub tasks working duration are shown here.

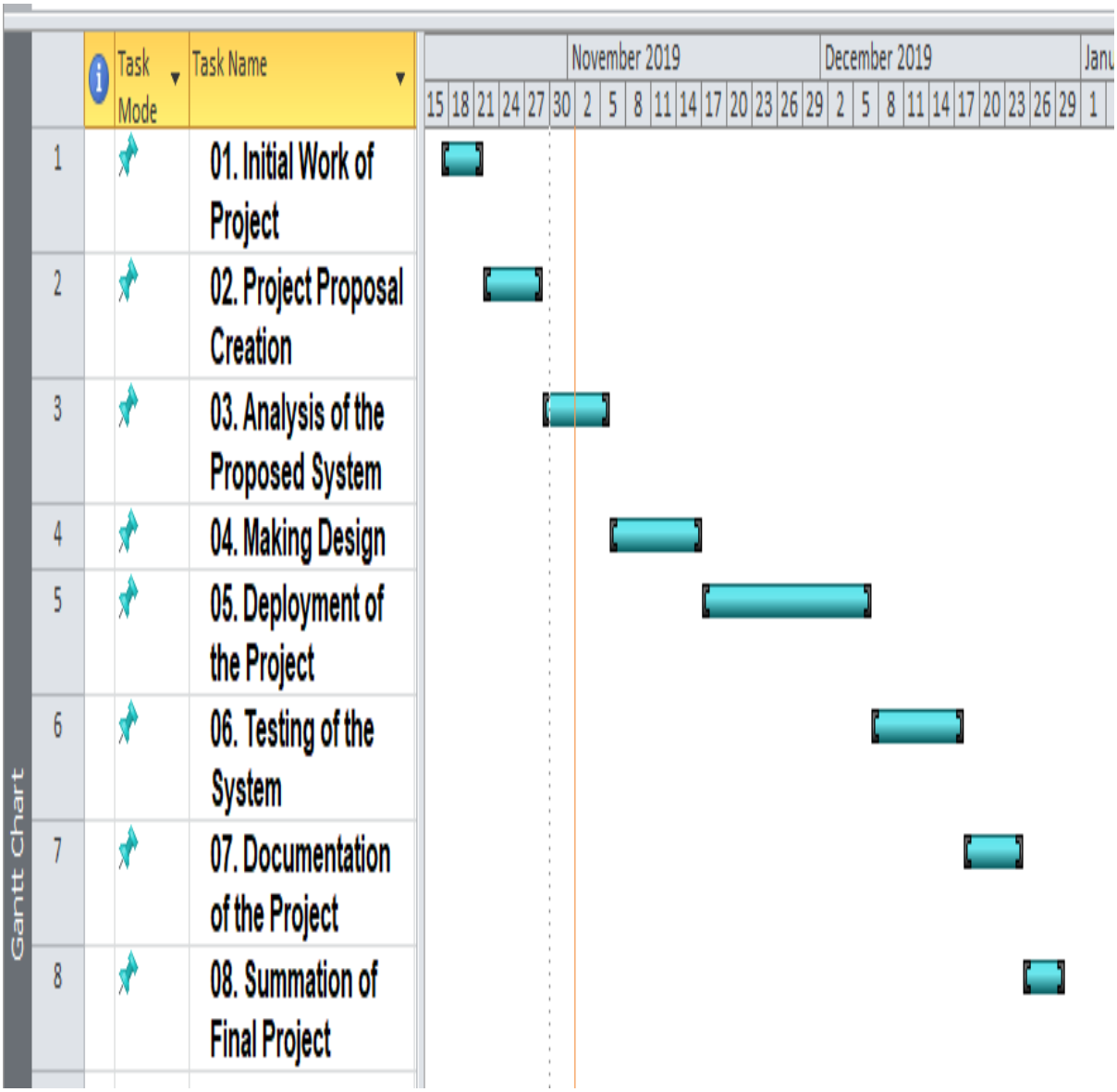


Figure 9: Gantt chart of this System.

5.2 Test Plan

Here I have make plan to testing the features and requirements of the software. All functionality is tested here to find out the faults. Different kinds of testing plan are done here for measuring the system efficiently.

5.2.1 Required Testing

In the world there is various kind of testing method. But I have chosen some most famous testing method for test the system.

Unit Testing:

It is the most famous and common technique to test a system. Individual unit or functions of the system are tested here with the user requirements of the project. Developer can edit the system code for individual unit or function.

Integration Testing:

Integration testing is about the combination of multiple functions. Combination of group features or functions are tested here. This testing is done after doing unit testing of the system.

Module Testing:

This testing is about doing evaluation of the business requirements and mainly focuses on the project's main integrated features and measures how well it works.

Acceptance Testing:

This testing is done for project acceptance. Mainly it is an evaluation process on requirements and criteria with business standards. Finally, this testing produces a decision that if the project is deliverable or not.

Performance Testing:

Mainly systems effectiveness is measured here. Other things like – stability, scalability, reliability also measured for the system. How well speed deliver the system – is measured here.

Security Testing:

Security testing is done for finding the weakness, threats or other confidential data in the system. How system organizes and keeps all things – it focuses on that.

5.2.2 Test Case

Test case delivery the process of the individual or particular functionality's work and measures that how it works. Test cases are the individual part for functionality. For my proposed system I have provide some kind of test case format for measuring functionality or features.

Test Case ID:		
Test Name:		
Test Type:		
Priority:		
Pre-Condition:		
Post-Condition:		
Steps	Expected Result	Actual Result

Figure 10: Template of Test Case for the Proposed System.

5.2.3 User Acceptance Test Plan

This testing will do user to identify or measure the criteria of the system. User tests the features to evaluate that how much it works properly. It will be done before launch the project finally. Here user just gives input in the different field and show the result. If it gives actual result, then user left a comment about the features.

Test Case ID:		User Name:	
Test Type:		Role:	
Test Name:			
Pre-Condition:			
Post-Condition:			
Steps	Expected Result	Actual Result	Comments

Figure 11: User Acceptance Testing Template.

5.3 Risk Management Plan

Risk management processes of the system are defining here. This part is about the how we can manage or minimize this projects risk of data from threats. Risk management plan is very much needed step for any project because if any type of risk occurs than it can be handled properly and gives the possible solution for save the system's data properly. For making risk management plan we have to analyze some process:

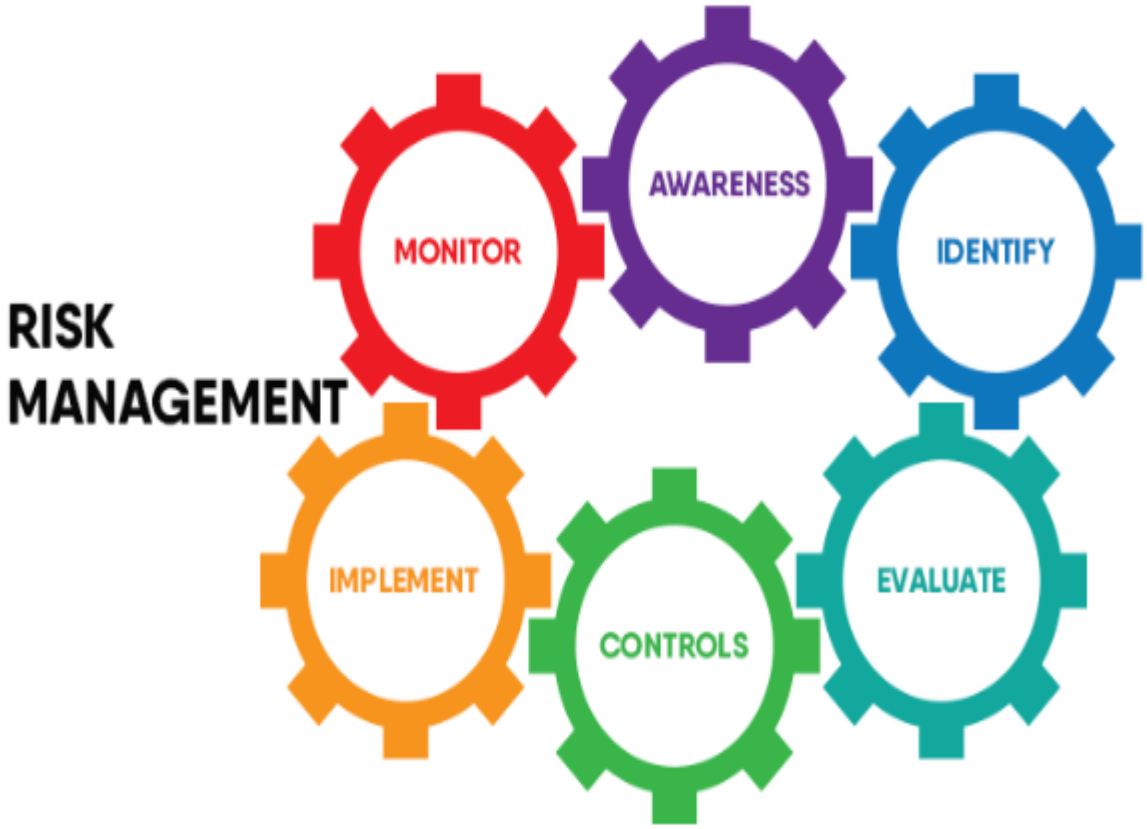


Figure 12: Risk Management Process. (smspro.com, 2019)

5.3.1 Risk Identification

This part defines the threats or difficulties area of the project. Identifies the objectives, which is constraint to reach the project goal. Some steps are follow for identify these risk.

- Make the list out of the probable risk with description.
- Risk's impact of the project.
- Identify the objectives of the project which are constraint for reaching the project goals.

Risk Type	Description	Objective
Project Risk	It affects the project objectives.	Time, Cost, Performance, Quality
Business Risk	It affects the business objectives.	Competitiveness, Profitability, Market Share, Reputation.
Safety Risk	It affects the safety objectives.	Minimal lost days and accident rate low.
Technical Risk	It affects the technical objectives.	Functionality, Performaance, Maintanability.
Security Risk	It affects the security objectives.	Security about Information, Personnel, Physical, Asset.

Figure 13: Different Types Risks and Description of Impact.

For identify the project risk I have follow different kinds of identification technique and provide a template for identify the risk of the proposed system.

S.#	Activity	Hazard Involved	Associated Risk	Persons at Risk	Initial/Actual Risk			Control Measures	Residual Risk			Responsible Person
					Likelihood	Severity	Risk Value		Likelihood	Severity	Risk Value	
1												
2												
3												
4												
5												

Figure 14: Template for Identify the Risk. (www.methodstatmenthq.com, 2019)

5.3.2 Risk Assessment

Risk assessment is about identifying the risk which will occurs in future. Determining this is called risk assessment analysis. Risk assessments are about some requirements; these are:

- Measuring the risk quality and set the level.
- Set consequence of the risk and estimate the control of risk.
- Determines and scoring – likelihood of the proposed system risks.
- Estimate the cost of handling or minimize the risk.

This figure is about the risk management matrix of the project:

		Likelihood				
		1 Rare	2 Unlikely	3 Possible	4 Likely	5 Almost Certain
Consequences	5 Catastrophic	5 Moderate	10 High	15 Extreme	20 Extreme	25 Extreme
	4 Major	4 Moderate	8 High	12 High	16 Extreme	20 Extreme
	3 Moderate	3 Low	6 Moderate	9 High	12 High	15 Extreme
	2 Minor	2 Low	2 Moderate	6 Moderate	8 High	10 High
	1 Negligible	1 Low	2 Low	3 Low	4 Moderate	5 Moderate

Figure 15: Risk Assessment Matrix. (www.hastam.co.uk, 2018)

5.3.3 Evaluation of Risk

In this part I have evaluate the risk measuring its size and take decision if it is acceptable for handling or not for the proposed system. Generally, risks are evaluated – based on two factors:

- Using prioritizing the risk based on category.
- Measure the size of risk and how can be it handled, these are defined in this part.

5.4 Change Management

5.4.1 Factors that Might Cause Change

After analyzing the initial things of the project I have set some requirements. But for development or implementation some changes may occurs. Now I will give the list of factors that might cause change:

- Changes of resources.
- Changes of setting the time boxes.
- Changes of requirements or function.
- Changes of technology or error.

5.4.2 DSDM Atern Welcome Change

DSDM aterns main theme is it welcomes changes. It supports changes by iterative development process. Iterative process is running during development time. DSDM divides work into different parts and big changes are not allowed, it divided into little time boxes. The changes are running continuous until the system wills not the requirements list; it will run under the iterative process.

5.4.3 Considering Business Value/Priority

Proposed systems are made by following the MoSCoW prioritization lists priority. Business requirement or values are placed in the prioritization list based on its importance. During development time the high priority requirements changes firstly and low priority requirements changes in last. DSDM changes also happen by the sequence of time boxes. Each time box stands on limited time and its changes happens iterative by priority and run it continuously until the fulfillment the requirements of each time box or requirements.

5.4.4 Change Workshop

DSDM atern always arranges facilitated workshop during development of the project. In the workshop user identify many areas which may take changes. In these workshop stakeholders, developers are directly facing each other and find the problem of the system and this workshop may cause the changes. Workshop is one of the common methods for making the changes on requirements of the project.

5.4.5 Changes that are allowed

By different techniques – there are many points or areas are found to be changes. But it is true that every change is not possible for development. The most common and important features are allowed for changes and others are depends on requirements prioritization list, need or time. Main changes are done by following business requirements.

5.4.6 Key Decision Taker of Change

For changing requirements – some parties are involved. Every member is not the part of this to finding criteria for changes. The decision taker of the project is – Business analyst, Developer, Testing team and Stakeholders.

- Systems functional changes are defined by the business analyst.
- Developer develops and makes change in source code of the project.
- Testing team test all the features and give feedback and guideline if changes will be needed.

5.5 Quality Management

This part ensures the product quality that managed for the life cycle of the project. For manage quality management plan I have to follow some criteria –

- Set a minimum level or standard of quality which will be acceptable.
- Set a minimum level or standard of quality assurance.
- Define the whole process of quality management.
- System's qualities are maintained by quality control features.

5.5.1 Rules Applied to Maintain the Quality

I have followed two rules for quality control which are applied to maintain of the proposed system. These are:

- **Quality Control:**

This part expresses the performance of the features or produces and defines the testing standard and met it with business requirements or criteria. I have made a template for quality control for this project:

S. N.	Features Name	Physical/Performance Standards	Quality Assessment Activities	Assessment Intervals
01				
02				

Figure 16: Template for Define Quality Control.

- **Quality Assurance:**

This part is about setting the accuracy of the product by doing matrix process and data analysis by iterative development. These measures are done when product is designing. I have made a template for quality assurance for this project:

S. N.	Action of the Process	Standards of Acceptable Process	Process Phase Info	Assessment Intervals
01				
02				

Figure 17: Template for Quality Assurance.

5.5.2 DSDM Atern Standard Quality Measures

DSDM's one of the main techniques is that – it never compromises with quality. It runs iterative development process until reach the standard of the product. For measuring quality measures DSDM follows two standards:

- **Process Quality:**

CMMI process of DSDM aterns make standard and set a level of any project. DSDM's iterative process ensures the process and product quality until finish it properly.

- **Solution Quality:**

Solution quality defines how the solution made by following DSDM's process within correct deadline. Solutions are made for fulfill the user's goal and fulfill the satisfactions of user. Solutions are done by following MoSCoW prioritization list.

5.5.3 Quality Plan and Measuring Meter

This part is about the discussion about what type of plan are made for measuring quality and its parameter. Many kinds of meter are used for measuring the standard of the project, its policy and accuracy. I have made some plan for maintain the quality and measure it:

- List out the resource with high priority, or highly needed features.
- Testing and iterative development runs properly.
- Resource allocation and set time boxes for each phase.
- If the results are not met with actual result proper guideline and process will be defined for quality management.

Chapter – 6: Feasibility Study

- Economic Feasibility
- Operational Feasibility
- Technical Feasibility
- Market Research analysis
- Cost Benefit Analysis

For a project – feasibility study is an analysis that practically defines all project's strength, weakness, environmental threats etc. It aims to find out the required resources, legal, technical study and ultimately play role for success a project.

6.1 Economic Feasibility

This feasibility defines the financial aspects of this project and meets criteria in the real world. It compares the benefit of the project with project cost and gives the summary. Generally economic demand stands based on requirements. For this system I developed a new system for hiring company. For running this website's work I have need some amount for deployment, hosting, controlling etc. Here I have made a draft for implement this system:

Serial No.	Component	Price (BDT)
01	Required Hardware	54,000/=
02	Required Software	50,000/=
03	Cost of Web Hosting	1,000/=
04	Other Components	27,700/=
Total Price		**1,30,700/=**

Hardware Price: Required hardware's prices are given below:

Serial No.	Component	Price (BDT)
01	Desktop PC/Laptop	50,000/=
02	Wi-Fi Router	2,000/=
03	Electrical Components	2,000/=
Total Price		**54,000/=**

Software Price: For making this system required software list and prices are–

Serial No.	Name of the Software	Price (BDT)
01	Xampp/Wampp (Free)	0
02	MS Office	10,000/=
03	Browser (Free)	0
04	Adobe Creative Cloud	10,000/=
05	OS (Windows)	25,000/=
06	Latest PHP Strom	5,000/=
Total Price		**50,000/=**

Hosting Price:

I will develop this system with PHP language with database MySQL. Now, there is need a unique name domain for hosting this system. Here the cost of it:

Serial No.	Hosting Name	Price (BDT)
01	www.householdworkerhire.com (Domain)	1,000/=
Total Price		**1,000/=**

Other Components Price:

Other components or services costs of this project are given below:

Serial No.	Name	Price (BDT)
01	Internet Connection Bill (1 Year)	7,200/=
02	Electric Bill (1 Year)	10,000/=
03	Maintenances/Security/Back Up	6,500/=
04	Employee Training	4000/=
Total Price		**27,700/=**

6.2 Operational Feasibility

This feasibility study is about fulfilling the project requirements with well functionalities and provides better operational function in the system. Operational feasibility study defines and considers some points for this project, these are –

- Legal aspects, user requirements are established so that project goal can be achieved easily (user can easily search worker for their home by searching worker category type, their required place etc.)
- Reduce time considerably by developing faster system and ensure faster access for doing any operation in the system (automated system – admin can easily manage and produce hiring report – that can be saves manual calculation time).
- Develop useful formatted information and provide reliable services in the system (Worker information with valid NID no and their available time period are deployed, admin can add category, time schedule to the system).

Define the role of end user and how its feel to adapt to change with system environment. It also ensures that system gives proper feedback to perform well in the system (In this system – if user give wrong input system gives proper guideline to fulfill the requirements).

6.3 Technical Feasibility

Here we making the solution of logical part of proposed system and it are involved in technical feasibility study. Generally, we hire worker manually but in the system we need gather lot of data and handle lot of data in the system. I deploy this 'Household Worker Hire Management' system in PHP platform. The proposed system also developed with HTML5, CSS3, bootstrap, JavaScript, jQuery, Ajax and database

MySQL for controlling the database system for this application. For making this web application there is need some additional hardware and software for running and testing the software during development time. In this project there are some additional hardware and software are given below:

Hardware	Desktop PC/Laptop (8 GB RAM, 1TBT HDD), Wi-Fi Router
Software	Xampp/Wampp Latest Version, Adobe Creative Cloud, MS Office 2007/2010, OS – Windows 10, PHP Strom Latest Version

6.4 Market Research Analysis Based on the Feasibility Factors

Based on feasibility factor I can say that this proposed system creation is possible in technically, financially and economically. And its market demand is high because this type of system is very much needed especially in Dhaka city and this type of system isn't exits. This system is feasibly actable in Bangladesh's society.

6.5 Cost Benefit Analysis for this System

This section measures that how much we get benefit for spending an amount of cost. By doing this we can say that if project will be benefited or not. Now, I have provided the data about cost and benefit of this proposed system for first year:

Cost Estimation:

Basic for	Cost (BDT)
Hardware	54,000
Software	50,000
Hosting	1,000
Others	27,700
Maintenance	10,000
Implementation	20,000
Total	**1,67,700**

Benefit Estimation:

Basic for	Benefit (BDT)
Business Improvement	90,000
Improvement of Productivity	30,000
Savings from Changes (Structural)	60,000
Total	**1,80,000**

Chapter – 7: Foundation

- Problem Area Identification
- Rich Picture
- System Architecture Diagram
- Specific Problem and its Description
- Possible Solution
- Overall Requirement List
- Technologies to be Implemented
- Recommendation and Justification of this Project

This chapter is the discussion about foundation architecture of the system and identifies the solutions by matching with all requirements. Foundations are visualization in this chapter and list out all the features of the system.

7.1 Problem Area Identification

This part is one of the critical part – that discuss about the technique for identify the problems. In software business analysis there are many kinds of problem identification techniques or tools. Some most important techniques are – interviews, questionnaires, workshop, data collection, survey, observation etc. I have used three (3) techniques for finding problem area identification for my proposed system. Now I will discuss about these techniques that how I am gathering data for this proposed system:

7.1.1 Interview

This is the most common technique for gathering data from system's user. Interviewer asks questions to the user for basic collection of data. A set of questions are pre-defined and user only give answer of the questions. I have used this technique in different way for my proposed system. Here I have point out my activities for making interview questions:

- During field work I have record user experience and demand for this system and kept it for further work.
- List out the problem of related existing system, which user want to avoid.
- Try to find out all types of user requirements.

7.1.2 Questionnaires

This technique is about to set some specific questions which can be vary on different nations, place, culture etc. Most common question is set for all users for gathering data. Users give their experiences under each question. I have following some criteria to set these questions for using questionnaires technique:

- Find out the most specific problem during hire workers. The main problem of this area is to find the available worker for the specific time.
- A visual presentation of problem area of this work would e the most effective for taking answer from the users. Then users can easily identify or can left answer about their experiences.

7.1.3 Observation

After collecting all data about user experiences the analyst need to organize and observe and match it with real world problems. For this initial study is needed on the collected data. I have use this technique in this system by following some aspects, these are:

- Listed the user requirements, the problems of the existing system and list out of these. There is no system in Bangladesh which is maintain the worker's schedule and worker's tracking facilities or focus on their personal information for better of the home work.
- Gathering data used for observation and this observation shows what will be the main features and what need to be developed first. This data gathering technique identifies the user's demandable area.

7.2 Rich Picture

This is the visual presentation of the system, which features or area systems holds – are identified here. This is the basic understand about the project. For standing foundation of a system we draw a rich picture by following the basic requirements, process or understanding. This picture is forces to make visual presentation rather than textual requirements. Here I have created a rich picture for this proposed system:

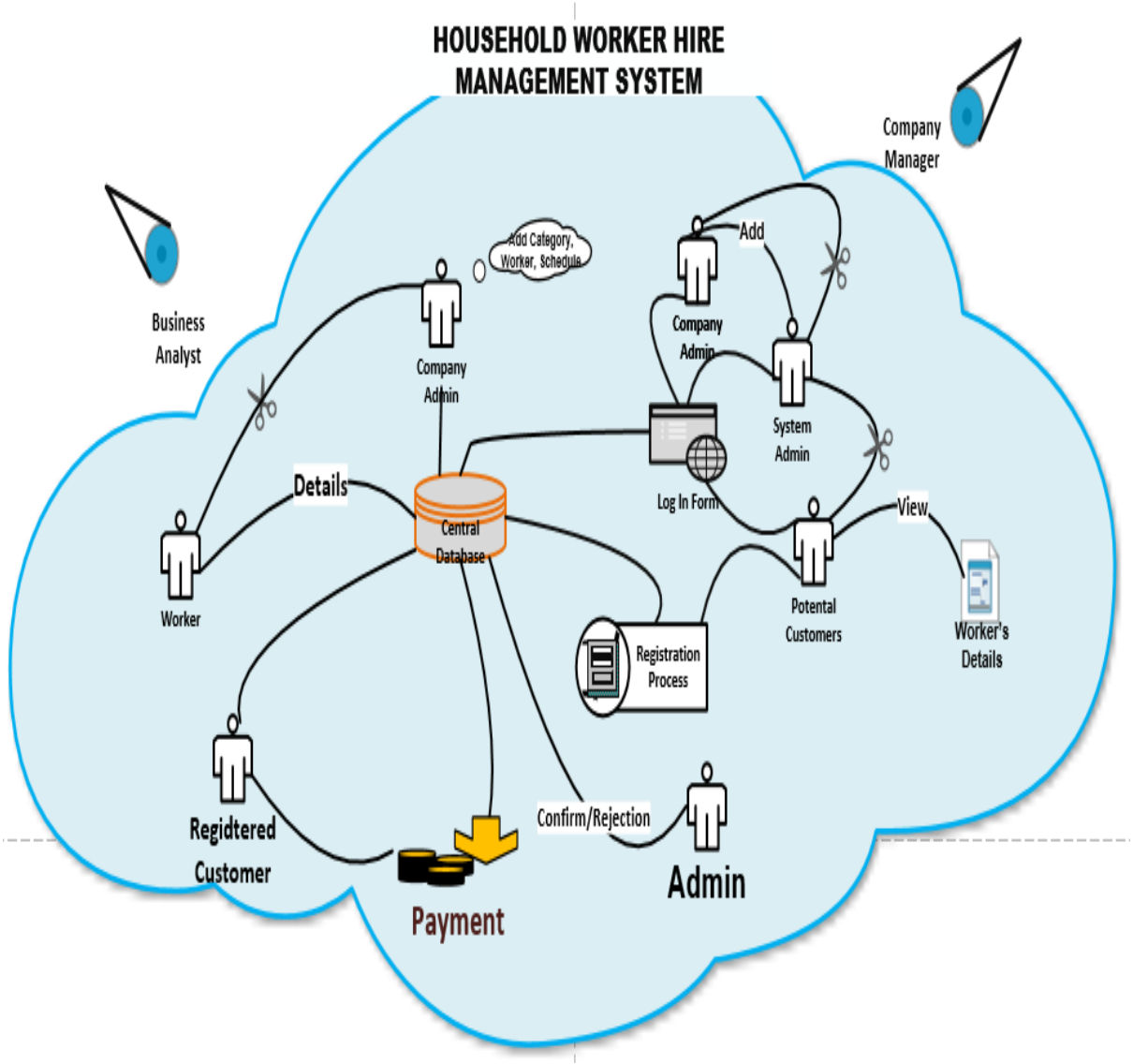
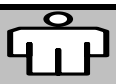
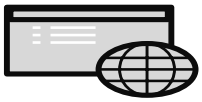
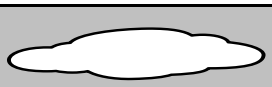
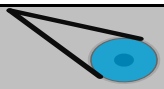


Figure 18: Rich Picture of Proposed System.

Description of Rich Picture Notations:

No.	Notations	Description
01	 **Actor**	• Actors of the system are defined with this notation. Actors – Company admin, system admin, customers.
02	 **Conflict**	• Conflicted area of the system is identified with this notation.
03	 **Payment**	• Payment can be completed with this system. This notation is used to understand this.
04		• All data are stored in database and system run dynamically. This notation defines database.
05		• This notation defines the registration process of the system.
06	 **Log In Form**	• This notation defines the log in process of the system.
07	 **Issues**	• Issues are described with these notations.
08	 **Report**	• System will produce various types of reports like – hiring report, calculation, monthly report etc.
09	 **Regulators**	• Regulators are show all the process and take necessary steps of this system.

7.2.1 Key Actors for This System and Impact of the System

- **Company Admin**

Company admin will be the main key actors of this proposed system. This person will monitor the whole system and Runs Company's work with worker's and customer's data and handle hiring information as well as repost generation.

- **Worker**

Worker hire management system's main features are implemented with the worker's data and schedule.

- **Hire Manager**

Hire manager will handle the hiring data of the worker. When manager get a request, manager checks the schedule of the worker and confirm the hire.

- **Accountant Manager**

Keep record about all financial data of the hire and play role in report generation section.

- **Customer**

Customers hire different types of worker from the system and send request for their need of the home.

7.2.2 Key Issues of this Proposed System

Key issued of this project is described here properly:

- **Time Handling Process for Worker's Schedule:**

The most difficult and key issue is for the system is handle the worker's schedule. Worker's works for little time, household work are very small typed for work. So, that the setting of the schedule of the worker and handle it properly after each hire would be difficult.

- **Communication Issues with Workers:**

Lack of communication between worker and company may cause of system difficulties. Because worker's all information is handled by the company admin. Our country's workers are not so much smart to handle their data in online like other counties worker.

- **Attract the Customer:**

Attract customer will be a key issue for this system. Other manual process would be the difficulties and may the reason for losing customer.

- **Complexity on Tracking Workers:**

Tracking worker is very difficult issue for this system. When someone hire worker for specific period but this works need more times general, then tracking issue would be difficult for handle in the system. Admin needs it update it every time for each hire.

- **Manual Transaction Process:**

Though this system will be implemented with payments method but some transaction will happen manually. Track these transactions and keep it in system will be difficult for this system. It can make complexities for making this system.

7.2.3 Conflicted Areas of this system

Conflict Area – 1:

(Between the Admin and Worker)

Admin handle the worker's information, their working schedule, time table and place of working area. If worker do not complete work in scheduled time or customer want more time than an issue would be created.

Conflict Area – 2:

(Between the Worker and Customer)

Customer wants worker by showing their schedule but if worker will involve with more work than conflict may happen and systems need to be handled properly by admin.

7.3 System Architecture Diagram

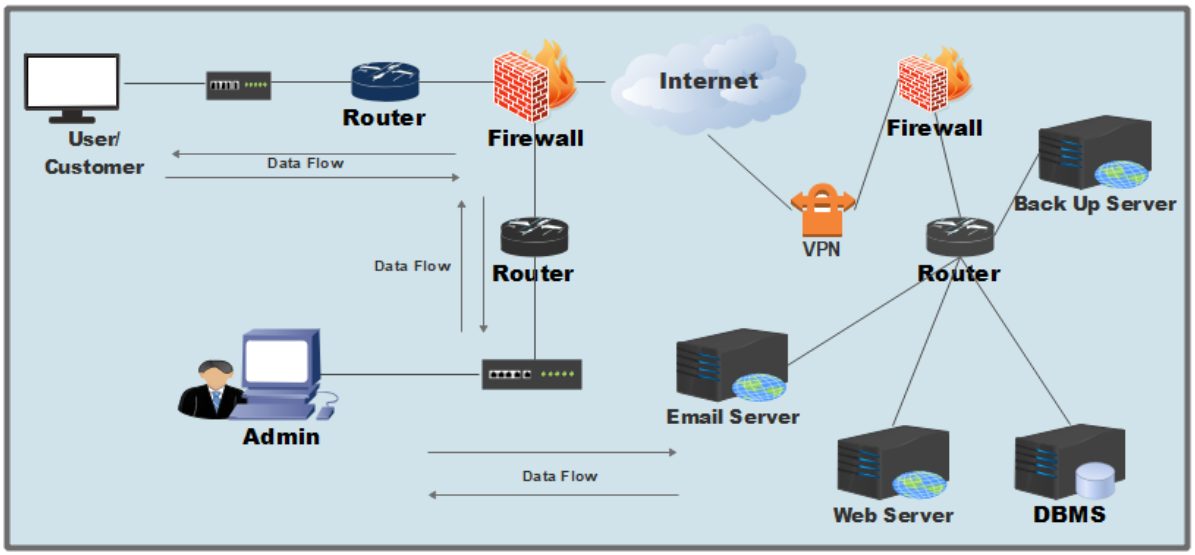


Figure 19: System Architecture Diagram of this Proposed System.

7.4 Specific Problem Area Identification and Description

I have specified some problems after observing and market research and search the related existing system in the world and measure our countries demand. These are –

- Admin handle the worker's working schedule, time table and place of working area. It is more difficult work to handle these data where workers work manually, there are need lot of things to be handled. Real life need to be implemented properly.
- Customer is very much concern about the worker's identification. Any unwanted issue can be rise because this work will be in house. So, security is very much needed. Assign a worker after proper judge is needed.
- Communication between admin with worker would create difficulties for this system. Manager needs to proper guideline to communicate them with business management team because continuous schedule handle is very much needed in the system for running this business properly.

7.5 Possible Solution

My proposed system's main concept is to making all possible solution for hire worker in city life. This web based computerized system are making the possible solution of problem area:

- A proper schedule management platform which will met the all criteria of worker's, admin and business management team.
- Proper and needed communication policy or process to run the business and customer proper feedback for each worker and rating themselves.

7.6 Overall Requirement List

These requirements are defined by based on business demand and wants. In this part I have provides the functional and non-functional requirements of the project.

7.6.1 Functional Requirements

- Effortless customer registration system using mail confirmation key.
- Login facilities for registered member and admin.
- Set and define the worker category in the system and manipulate the category data.
- Set workers category of working, like – Permanent/Temporary.
- Add and manipulate the data of worker and admin able to set the list following category.
- Worker's schedule handles and set availability in the system by admin.
- Hire worker based on area and schedule and track time of delivery with Google map.
- Schedule auto update after hiring worker.

- Customer able to view total cost of hiring and generate report.
- Online payment facilities.
- Admin able to view total hiring information and can make report based on month, year etc.
- System calculates offering cost based on worker hire for particular customer.

7.6.2 Non Functional Requirements

- User friendly interface – user can interact with system easily.
- Secured system.
- Proper validation & verification used for user input.
- Provide better usability.

7.7 Technology I Have Implemented

For making this proposed system I have used many kinds of technology. I have chosen two types technology for making this proposed system: **Client/Server Application, Web Server Application.**

- **Client/Server Application:**

Its main concept is run system with client machine and systems are hosted into user's machine. Client sends request for the access of the system and client machine give it from remote machine. It works very fast for holds different features in client based server, (Anon., 2019). Client based Application has some basic concept, these are:

- ✓ User's devices are not to be installed any kind of software.
- ✓ This application is highly constable and handling is little bit difficult.

- ✓ It is not capable for handle lot of users at a time.

- **Web Server Application:**

Its main concept is – it hosted in a server with unique domain name and user can access it via domain name through web browser with Internet connectivity. No installation is needed use the system because it fully hosted in web server, (Anon., 2019). Web server has some basic concept; these are:

- ✓ For acceptability need to use URL link.
- ✓ Web-based system can be accessible with all kinds of browser in the world with lot of users.
- ✓ With the connectivity of Internet, it is no need any kinds of software installation.

7.8 Recommendation & Justification

For this proposed system my recommendation is to use web server application. If the system will be implemented with web based server, it will be more useful for real life.

Justification:

- For using web server use – the most important things are no need to install supportive software for run the system.
- Rapidly used all over the world and most famous server in the world.
- Associability is very easy from anywhere and any place.
- At same time web server can give serve large number of users.(Anon., 2019)

Chapter – 8: Exploration

- Business Process Modeling and Notation
- Requirement Specification for Problem Domain
- Prioritized Requirement List
- Requirement Catalogue
- Prototype of New System
- Initial Class Diagram

This chapter is about the brief description of the project development. Business analysis, project requirements, business process diagram are exploring here and give the work of it for the proposed system.

8.1 Business Process Model and Notations

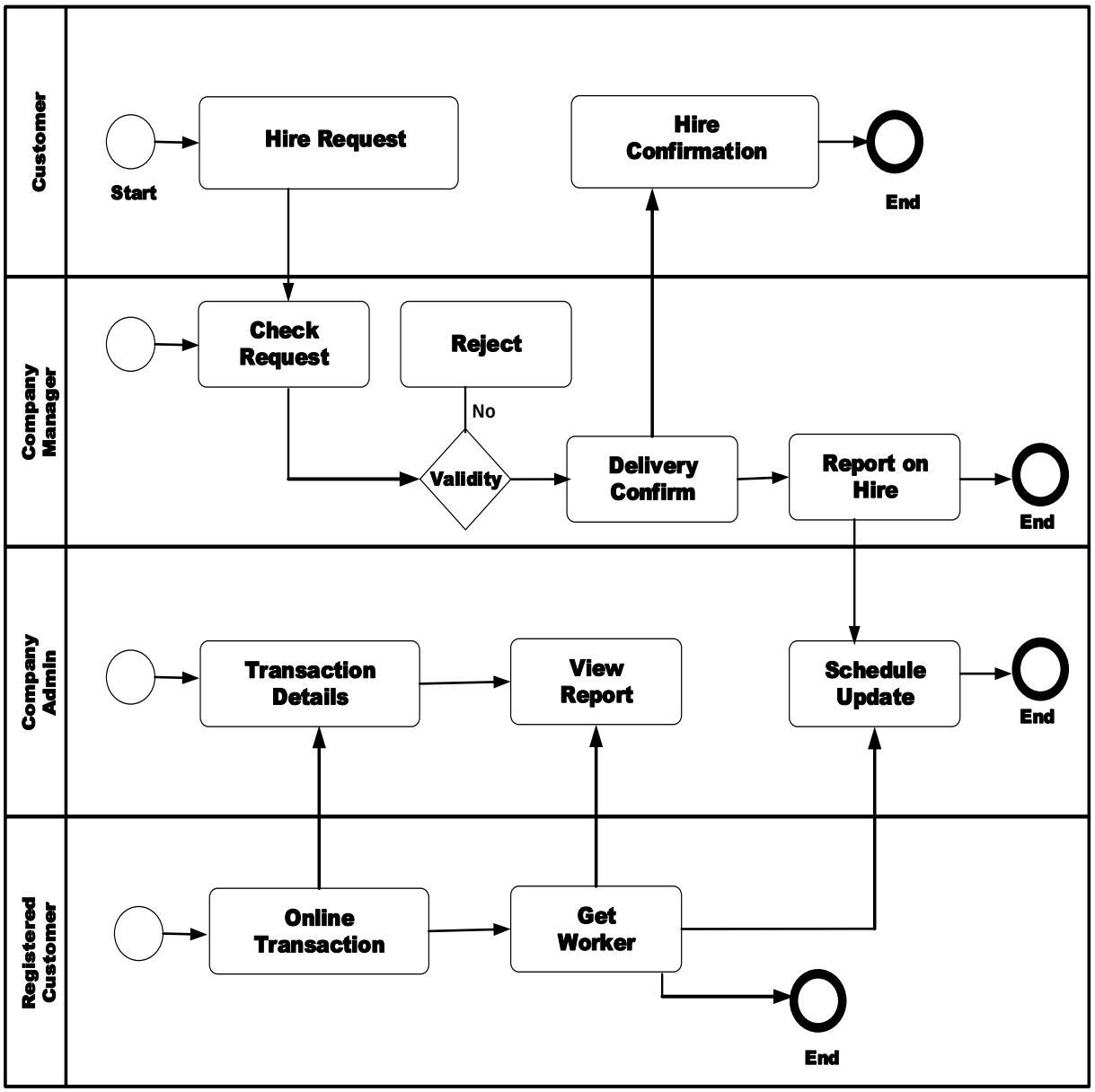


Figure 20: BPMN Diagram for Hire Worker System.

8.2 Requirement Specification for Problem Domain

Problem domain identify is the basic need for business understanding of a project. Requirement specification is used to find the process of the project:

- In our country there is no site which can supply the household worker for few period of time. Worker management, hiring report and hire process by manually is difficult process.
- Schedule management and category handling by electronic devices is difficult things. Our country's website does not provide all these facilities' for city business.
- Manual transaction and report generation is very much needed for run this type of business. Customer want to hire worker using secured way and through trusting company.

These are the main problem for hiring worker based on website.

8.3 Prioritized Requirement List

For set the prioritization list of the project requirement I have used MoSCoW prioritization. This list ensures the early delivery of the project. Here the lists are 4 parts:

I. Must Have:

Project's main feature and functions are defined here. Without must have requirements projects main goal is not achieved. Here the main features of this project:

- ✓ User registration and log in process.
- ✓ Worker category manipulation.
- ✓ Worker list manipulation.
- ✓ Session creation.
- ✓ Hire process of the worker.
- ✓ Comment on worker.
- ✓ Generate report of the project.
- ✓ Online payment method.

II. Should Have:

This part defines the essential features or requirements. It identifies which a requirement makes the system benefited. These projects should have requirements are:

- ✓ Manipulate different types of user or customers.
- ✓ Update each and every operation.
- ✓ Log in attempts and log out from the system.

III. Could Have:

It identifies which a requirement makes the system benefited these requirements are not essential in the project. These projects could have requirements are:

- ✓ Customer profile update or password update.
- ✓ Feedback about company or rating the company.

IV. Won't Have:

It is about identify which are not needs to deploy. This projects won't have requirements are:

- ✓ Customer's devices remind or live chat about company.

8.4 Requirement Catalogue

Here the all things about requirement catalogue of this system:

Name of the Requirement: User Registration			
Source: Company Admin	**Sign off:** Company Admin	**Priority:** Must Have	**Catalogue ID:** HWH-01
Functional Requirements	Potential customer should register into the system with validate data and turns into registered users.		
Non-Functional Requirements	Proper validation and verification is needed for each fields of registration.		
Details	**Target Range**	**Acceptable Range**	**Overview**
User registration in the system.	25 per day	30-40 per day	Using mail confirmation for run this process.

Name of the Requirement: Log In			
Source: Company Admin	**Sign off:** Users	**Priority:** Must Have	**Catalogue ID:** HWH-02
Functional Requirements	Registered customer should log into the system by suing their registered email and password.		
Non-Functional Requirements	Proper validation and verification is needed email and password field.		
Details	**Target Range**	**Acceptable Range**	**Overview**
User Login the system.	1000 per day	1000 per day	Using mail and password for log in.

Name of the Requirement: Add Category of Worker			
Source: Company Admin	**Sign off:** Customer	**Priority:** Must Have	**Catalogue ID:** HWH-03
Functional Requirements	Company admin should create new category for different types of user and manage the data.		
Non-Functional Requirements	Proper validation and verification is needed add category into the system.		
Details	**Target Range**	**Acceptable Range**	**Overview**

Worker's categories add into the system.	50 per day	60-70 per day	Using valid data for create category correctly.

Name of the Requirement: Add Worker			
Source: Company Admin	**Sign off:** Customer	**Priority:** Must Have	**Catalogue ID:** HWH-04
Functional Requirements	Company admin should create new worker for different types of user and manage the data.		
Non-Functional Requirements	Proper validation and verification is needed for each fields of add worker.		
Details	**Target Range**	**Acceptable Range**	**Overview**
Worker adds into the system.	50 per day	60-70 per day	Using valid data for create new worker correctly.

Name of the Requirement: Hire Process			
Source: Company Admin	**Sign off:** Company Admin	**Priority:** Must Have	**Catalogue ID:** HWH-05
Functional Requirements	Customer should capable of hire different types of worker based on their need.		

Non-Functional Requirements	Proper validation and verification is needed for run hire process.		
Details	**Target Range**	**Acceptable Range**	**Overview**
User registration in the system.	500 per day	500-600 per day	Using mail confirmation hire process.

8.5 Prototype of New System

This part represents the graphical view of the future system. People can gain idea that how the system will be look like:

Figure 21: Prototype of Home Page.

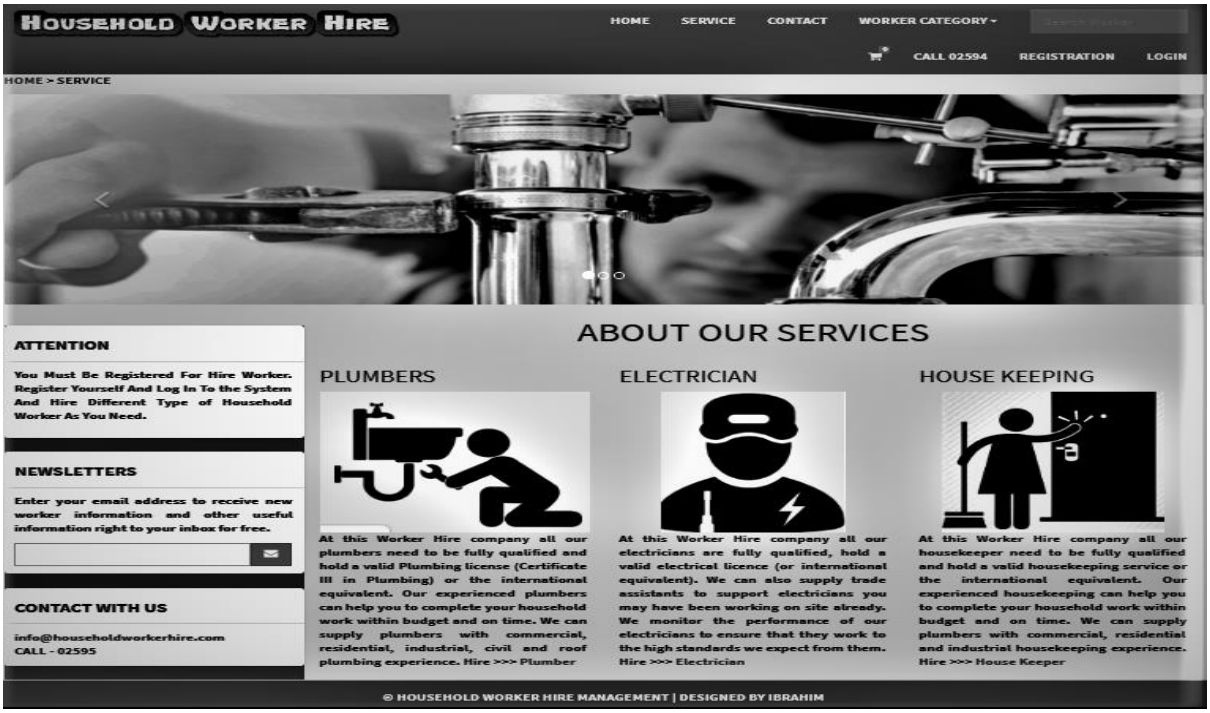


Figure 22: Prototype of Service Details Page.

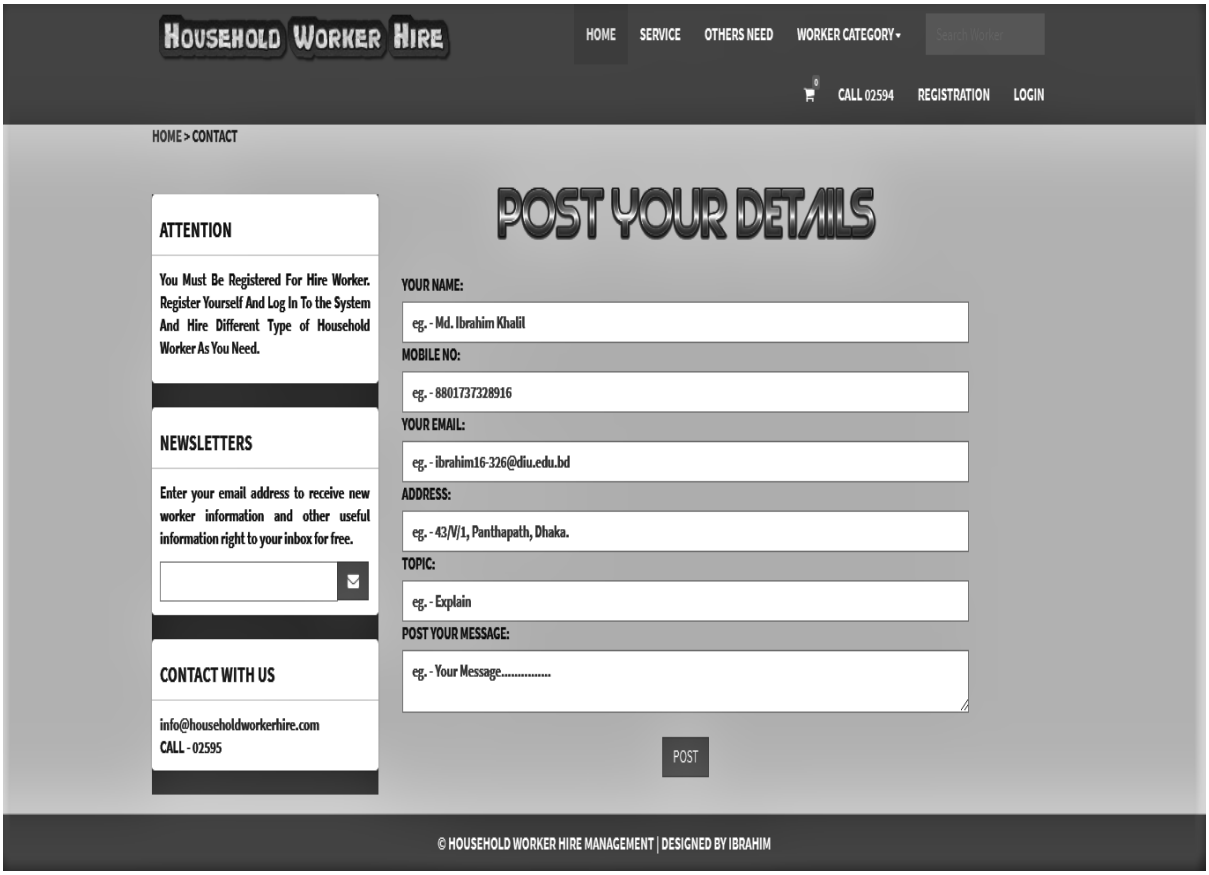


Figure 23: Prototype of Contact us Page.

Figure 24: Prototype of Log in Page.

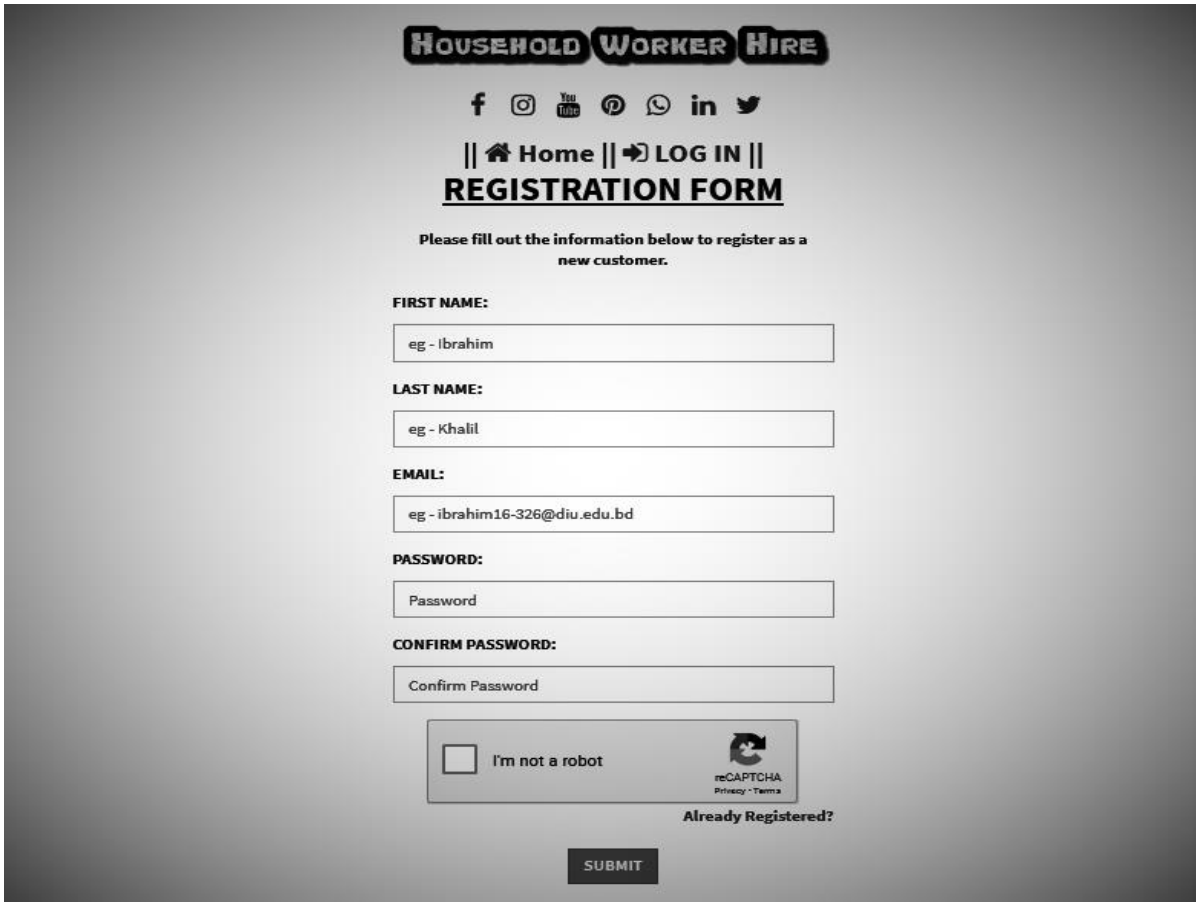


Figure 25: Prototype of Registration Page.

Figure 26: Prototype of Admin's Dashboard Page.

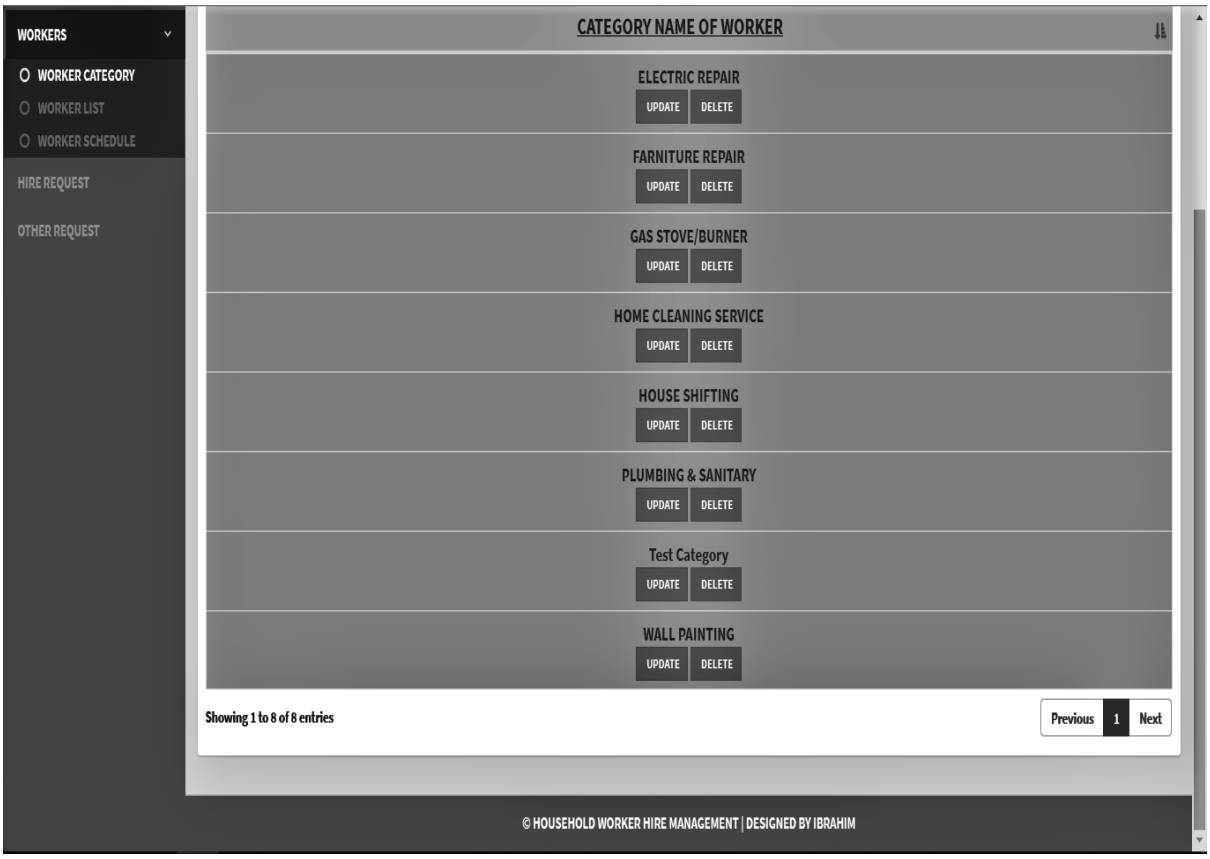


Figure 27: Category Creation Prototype.

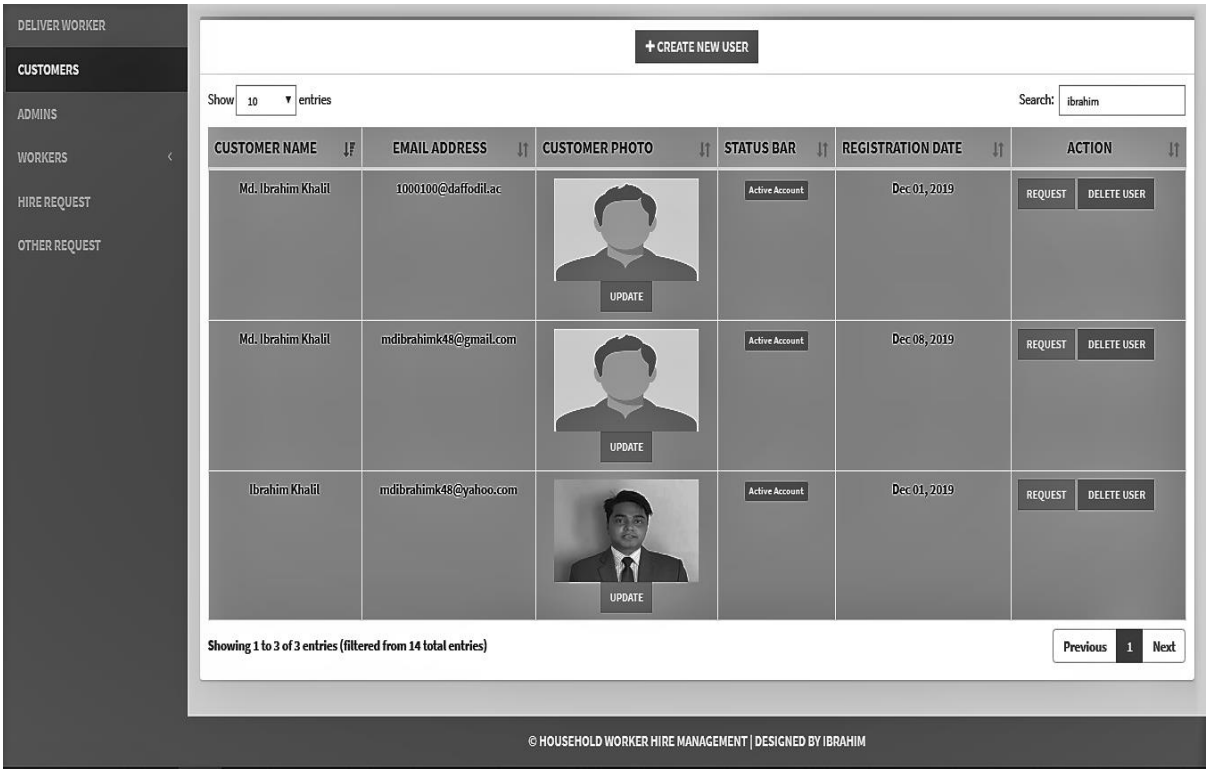


Figure 28: Customer Add Prototype.

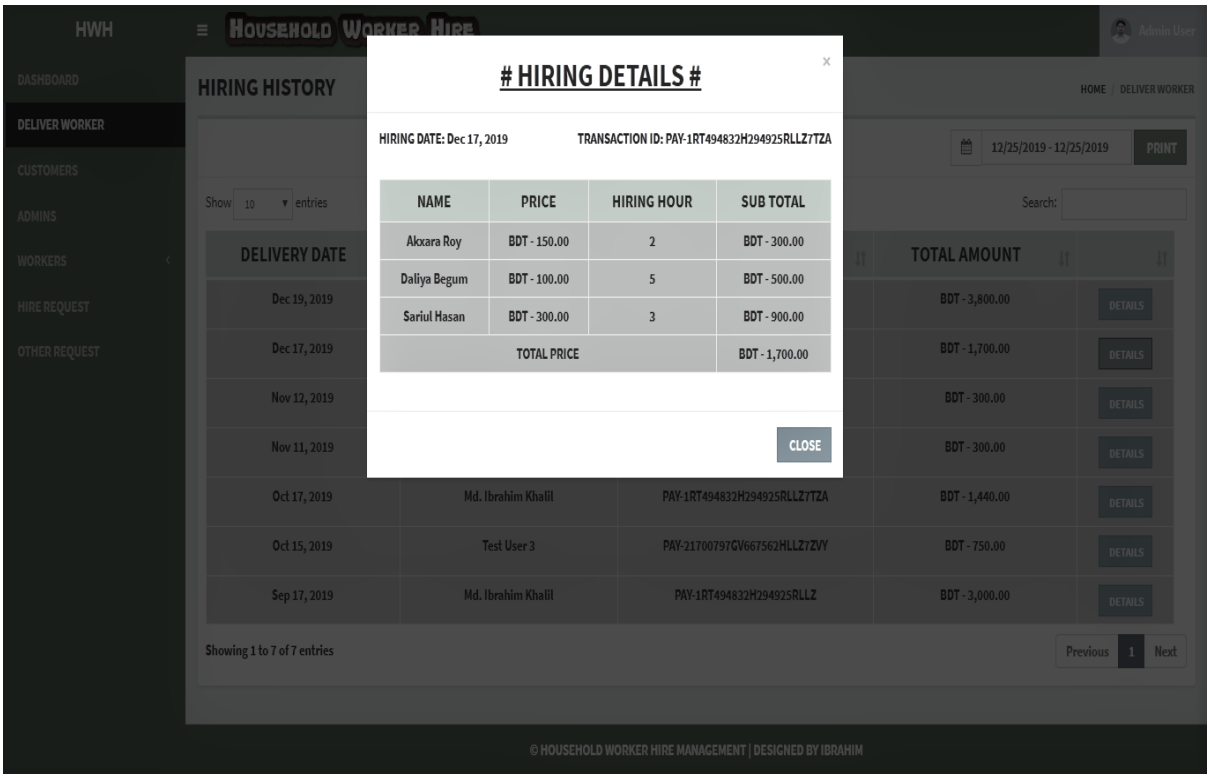


Figure 29: Hiring Details Prototype.

8.6 Initial Class Diagram

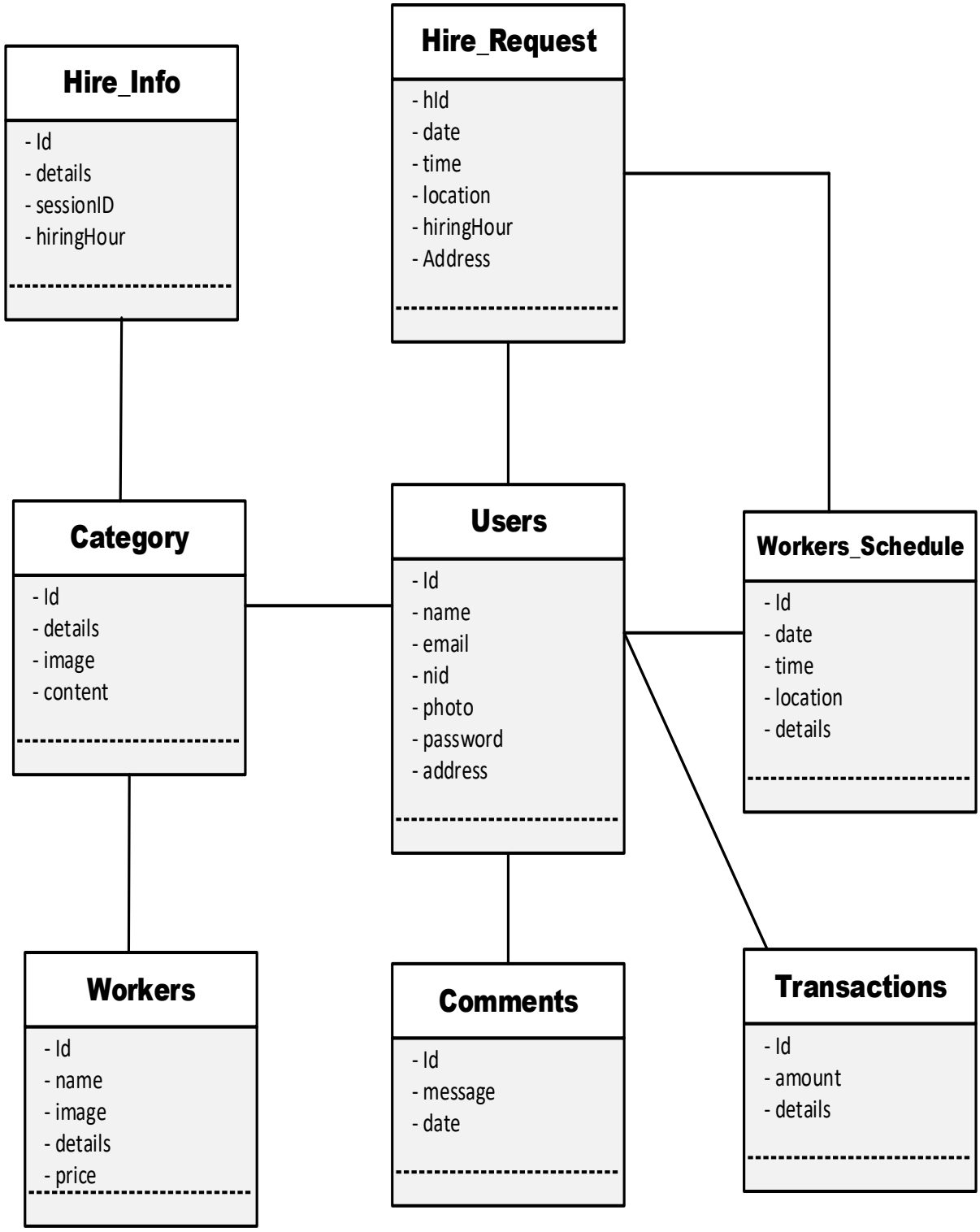


Figure 30: Proposed System Initial Class Diagram.

Chapter – 9: Engineering

- Data Flow Diagram
- Use Case Diagram
- Description of the Use Case
- Activity Diagram
- Class Diagram
- Enhanced Entity Relationship Diagram
- Sequence Diagram
- Component Diagram
- Deployment Diagram
- System Interface Design

This part is about the system diagram and description of the proposed system. Software architecture of the system is given here and describes it for the household worker hire management system.

9.1 Data Flow Diagram (DFD Level – 1)

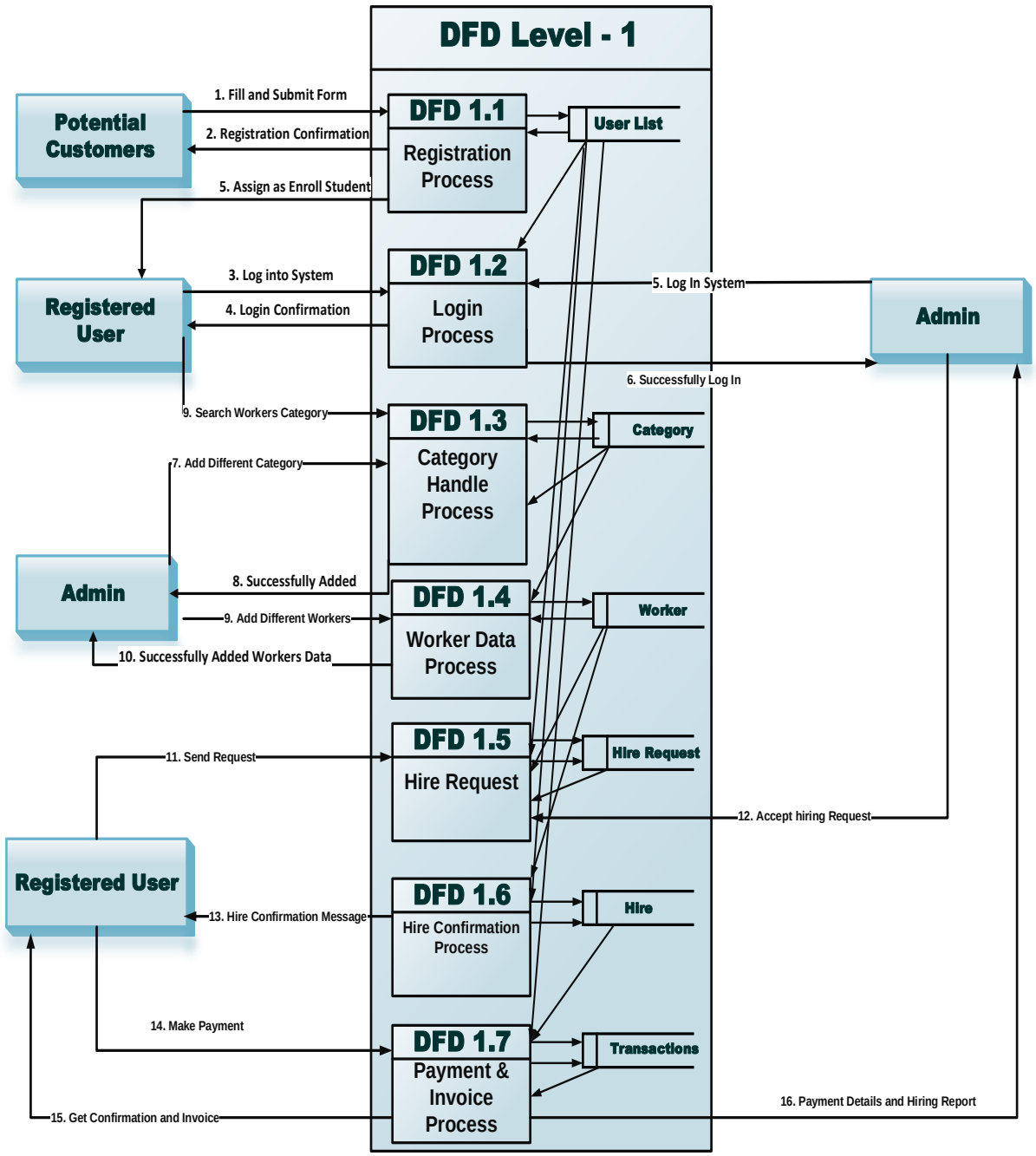
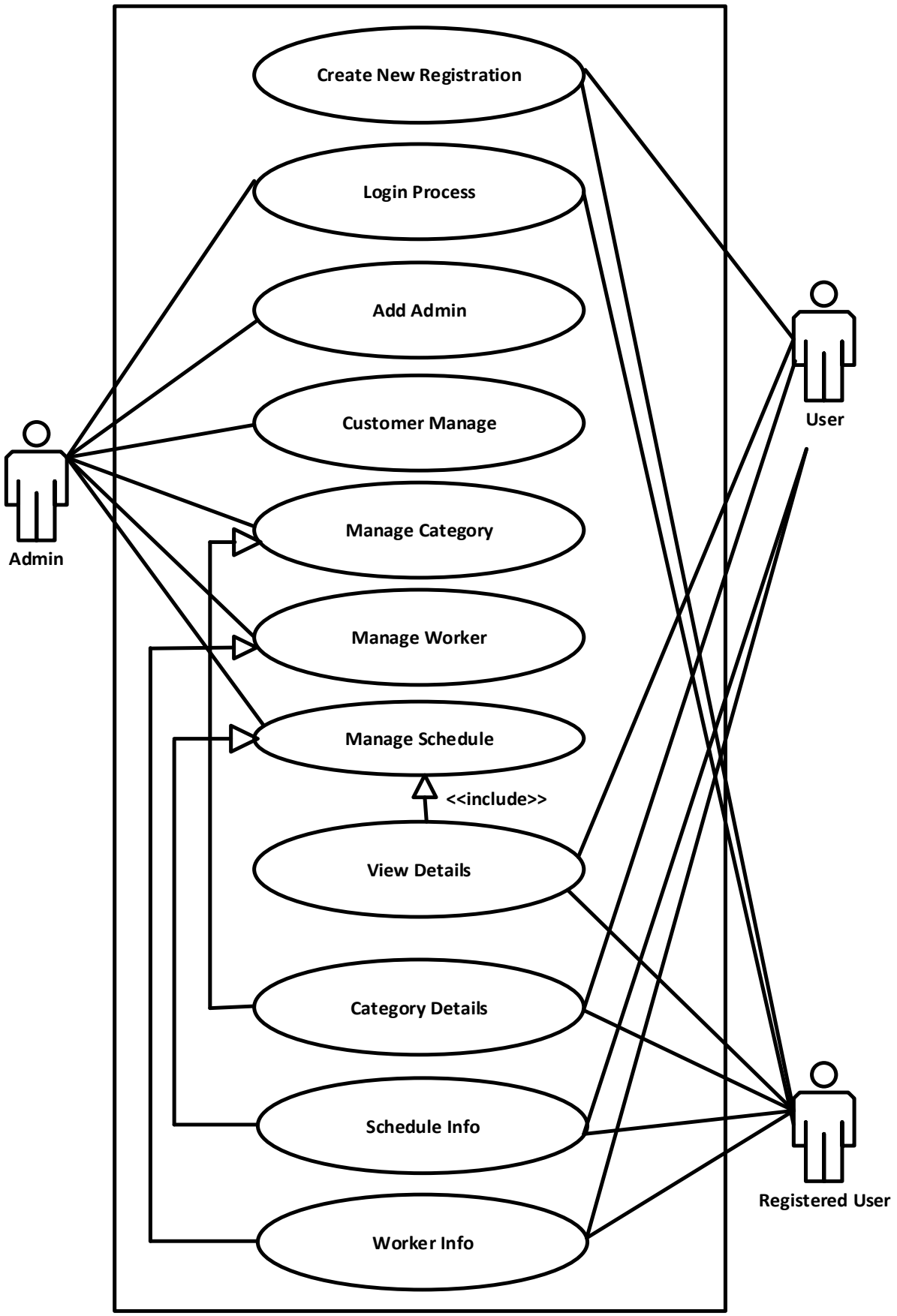


Figure 31: Data Flow Diagram (DFD) of this System.

9.2 Use Case Diagram



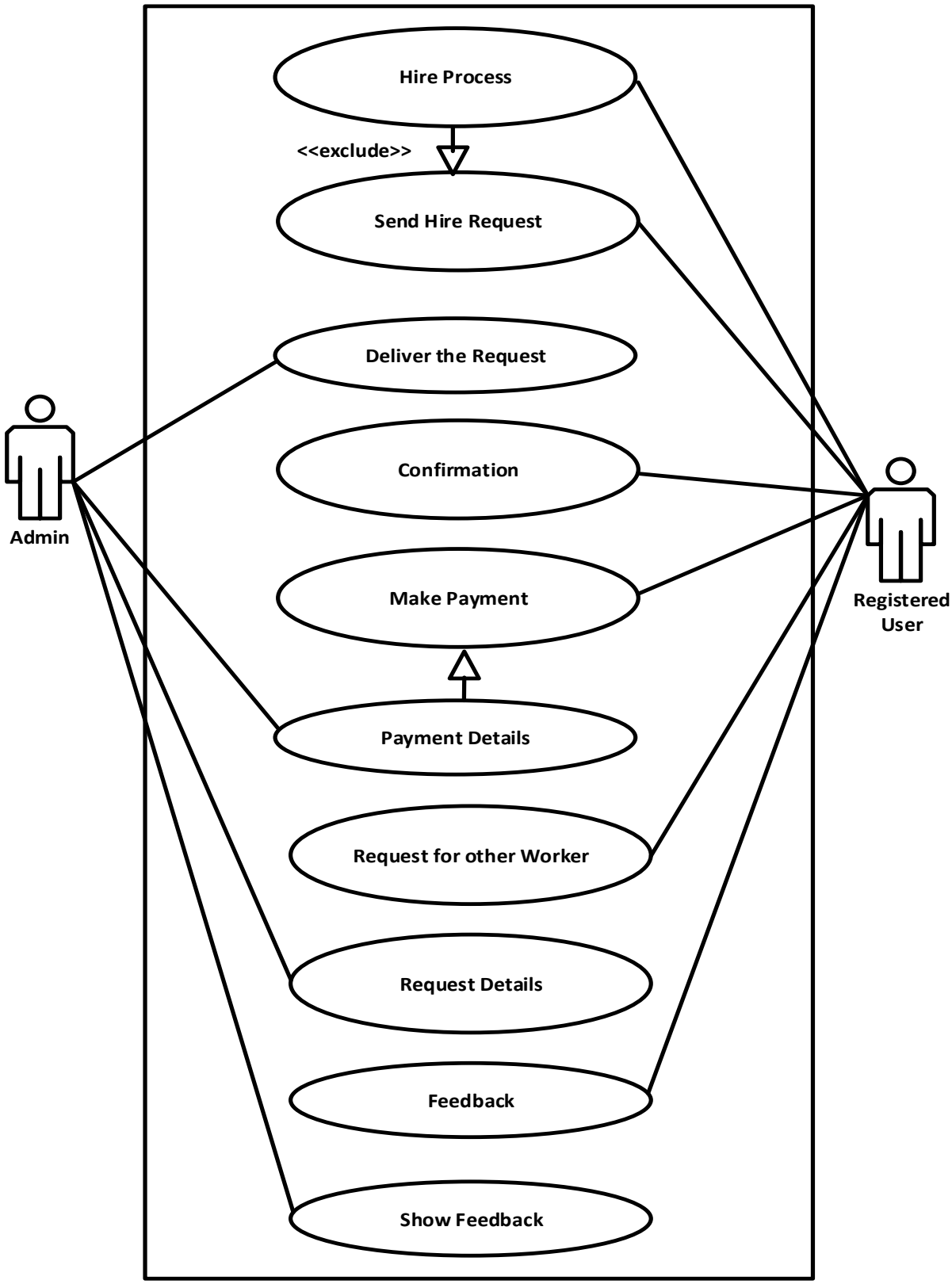


Figure 32: Use Case Diagram of HWH Management System.

9.3 Use Case Description

1. Create New Registration
Brief Description: Potential customers done their registration into the system.
Actors of this Use Case: Potential customers/customers.
Pre-conditions: The actor is also a registered student.
Basic Flow of the Events: ➢ Potential customers click the registration bar. ➢ Fill the field with validate data and information. ➢ Customers need to check their email for mail confirmation, to active the account.
Extensions of this: • System shows that – the registration successfully done, you may go now the log in page. • If mail activation does not work or any fields fill with wrong data than system shows error message.
Post-Conditions: Registration successfully done.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

2. Log in Process
Brief Description: Potential customers done their registration into the system.
Actors of this Use Case: Registered customers, Company admin/others admin.
Pre-conditions: Must need to be registered in this system. Database stores all user's information.

Basic Flow of the Events: ➢ Fill the log in form with registered email and correct password. ➢ Then click on log in button for enter to the system.
Extensions of this: • If email or password would incorrect than it shows error message. • More logs in attempts can block user for a certain time.
Post-Conditions: Successfully log into the system.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

3. Add Admin
Brief Description: System admin can add company admin as their need.
Actors of this Use Case: System admin.
Pre-conditions: System admin need to be log into the system.
Basic Flow of the Events: ➢ Fill the admin form with validate data. ➢ Then leave the system.
Extensions of this: • If data is validated than it shows successful message otherwise it shows error message.
Post-Conditions: Successfully added admin into the system.
Special Requirements: Internet connectivity is needed to run this operation.

4. Customer Manage
Brief Description: Company admin can manage customer's data. They can add, update or remove customer to the system.
Actors of this Use Case: Company admin.
Pre-conditions: Admin must be log in into the system.
Basic Flow of the Events: ➢ Fill new customer form and submit it into the system. ➢ Manipulate the data when needed then leave the system.
Extensions of this: • If data is valid it successfully loaded otherwise it shows error message.
Post-Conditions: Successfully manage customer data.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

5. Manage Category
Brief Description: Company admin can manage worker's category data. They can add, update or remove category to the system.
Actors of this Use Case: Company admin.
Pre-conditions: Admin must be log in into the system.
Basic Flow of the Events: ➢ Fill new category form and submit it into the system. ➢ Manipulate the data of worker's category when needed then leave the system.

Extensions of this: • If data is valid it successfully loaded otherwise it shows error message.
Post-Conditions: Successfully manage worker's category data.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

6. Manage Worker
Brief Description: Company admin can manage worker data. They can add, update or remove worker to the system.
Actors of this Use Case: Company admin/other admin.
Pre-conditions: Admin must be log in into the system.
Basic Flow of the Events: ➢ Fill new worker form and submit it into the system. ➢ Manipulate the data of worker's data when needed then leave the system.
Extensions of this: • If data is valid it successfully loaded otherwise it shows error message.
Post-Conditions: Successfully manage worker's data.
Special Requirements: Internet connectivity is needed to run this operation.

7. Manage Schedule
Brief Description: Company admin can manage worker schedule. They can add, update or remove worker to the system.

Actors of this Use Case: Company admin/other admin.
Pre-conditions: Admin must be log in into the system.
Basic Flow of the Events: ➢ Fill new schedule form and submit it into the system. ➢ Manipulate the data of worker's schedule when needed then leave the system.
Extensions of this: • If data is valid it successfully loaded otherwise it shows error message.
Post-Conditions: Successfully manage worker's schedule data.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

8. View Details
Brief Description: User of this system can view details about this company, system or workers.
Actors of this Use Case: Potential customers, Registered customers, Company admin/others admin.
Pre-conditions: Must need to store all information in database by registered admin or users.
Basic Flow of the Events: ➢ View the details of category, worker's data, schedule etc.
Post-Conditions: Successfully view the details about company and worker.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

9. Category Details
Brief Description: User can search category details and its worker.
Actors of this Use Case: Company admin, potential customers, registered customers.
Pre-conditions: Must need to be creating category first by company admin.
Basic Flow of the Events: ➢ Admin creates worker's category. ➢ User search category and run operation.
Extensions of this: • If categories are not created by company admin than system shows that there are no categories in this system.
Post-Conditions: Search data successfully shown.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

10. Schedule Info
Brief Description: Potential customers and registered customer can search schedule info of different category's worker.
Actors of this Use Case: Potential customers and registered customer.
Pre-conditions: Must need to be adding schedule info by company admin.
Basic Flow of the Events: ➢ Search workers schedule using by category list of this system. ➢ Individual worker have schedule list.

Extensions of this: • If schedule is not entered than it shows, there are no worker schedule.
Post-Conditions: Successfully show the worker's schedule details in this system.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

11. Worker Info
Brief Description: Potential customers and registered customer can search worker's info of different category's worker.
Actors of this Use Case: Registered user.
Pre-conditions: Must need to be adding worker under a category by company admin.
Basic Flow of the Events: ➢ Search workers list using by category list of this system. ➢ Individual worker has individual list.
Extensions of this: • If schedule is not entered than it shows, there are no worker schedule.
Post-Conditions: Successfully show the worker's details in this system.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

9.4 Activity Diagram of the System

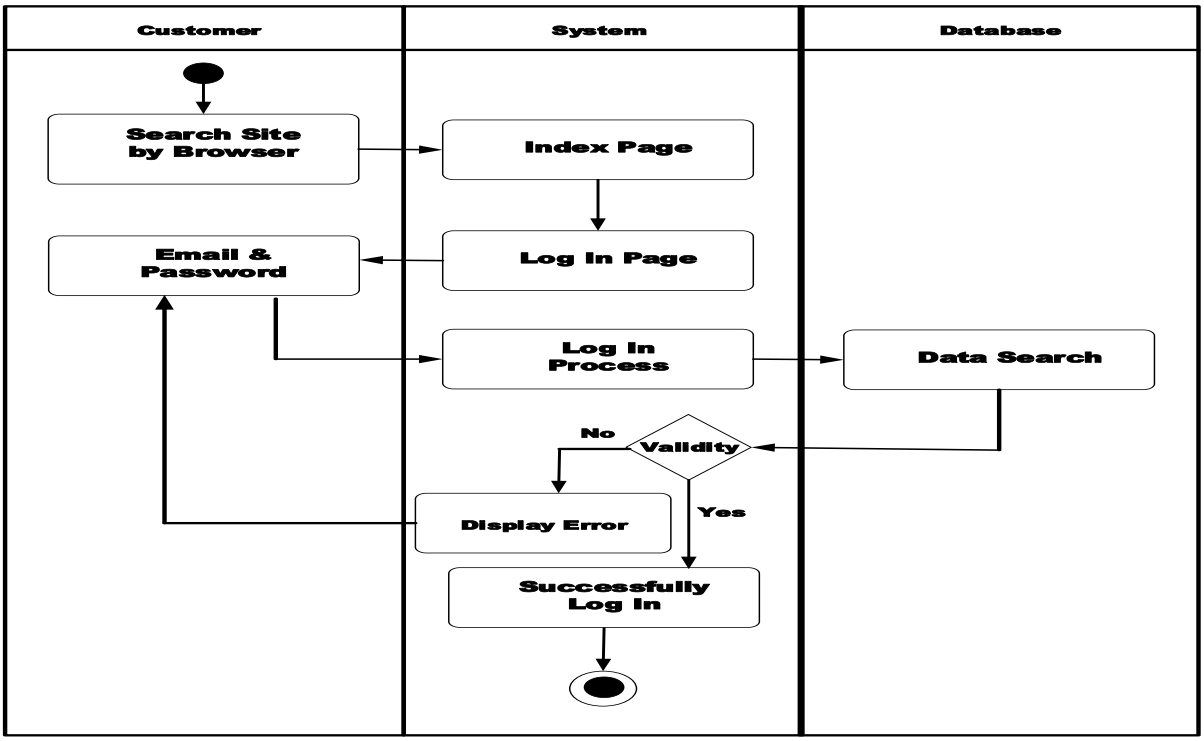


Figure 33: Activity Diagram of Log in Process.

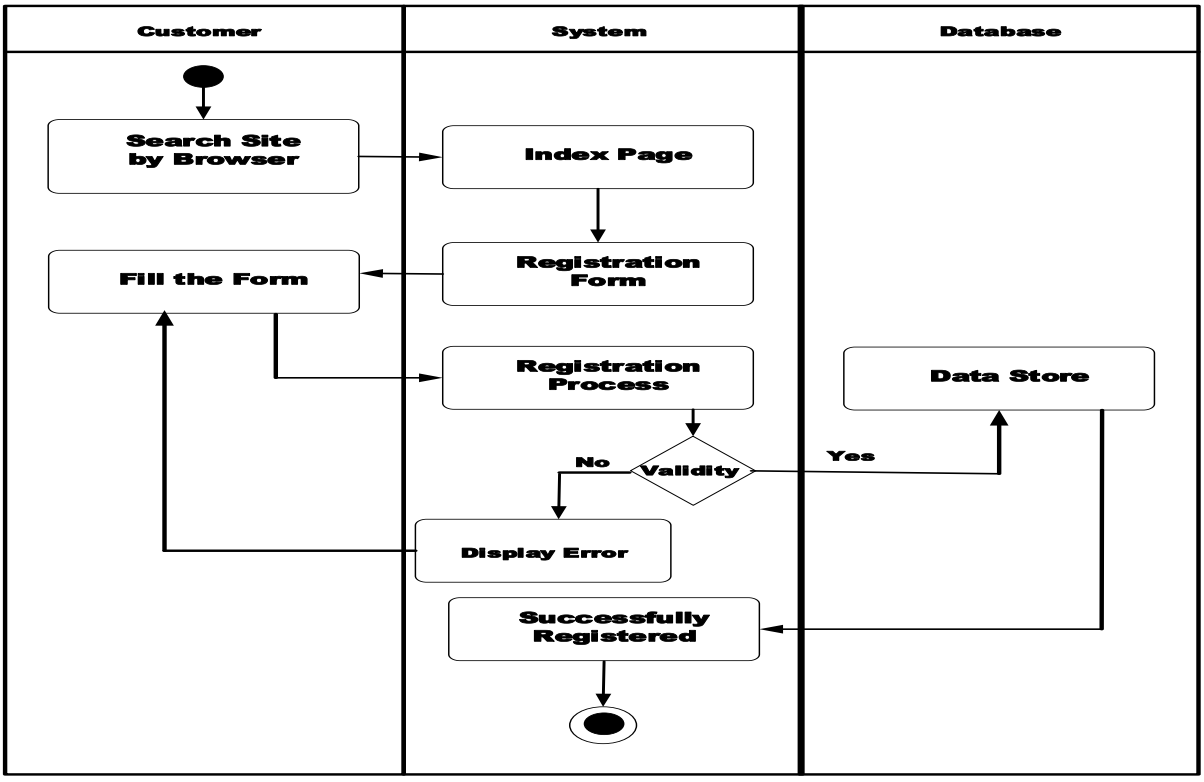


Figure 34: Activity Diagram of Registration Process.

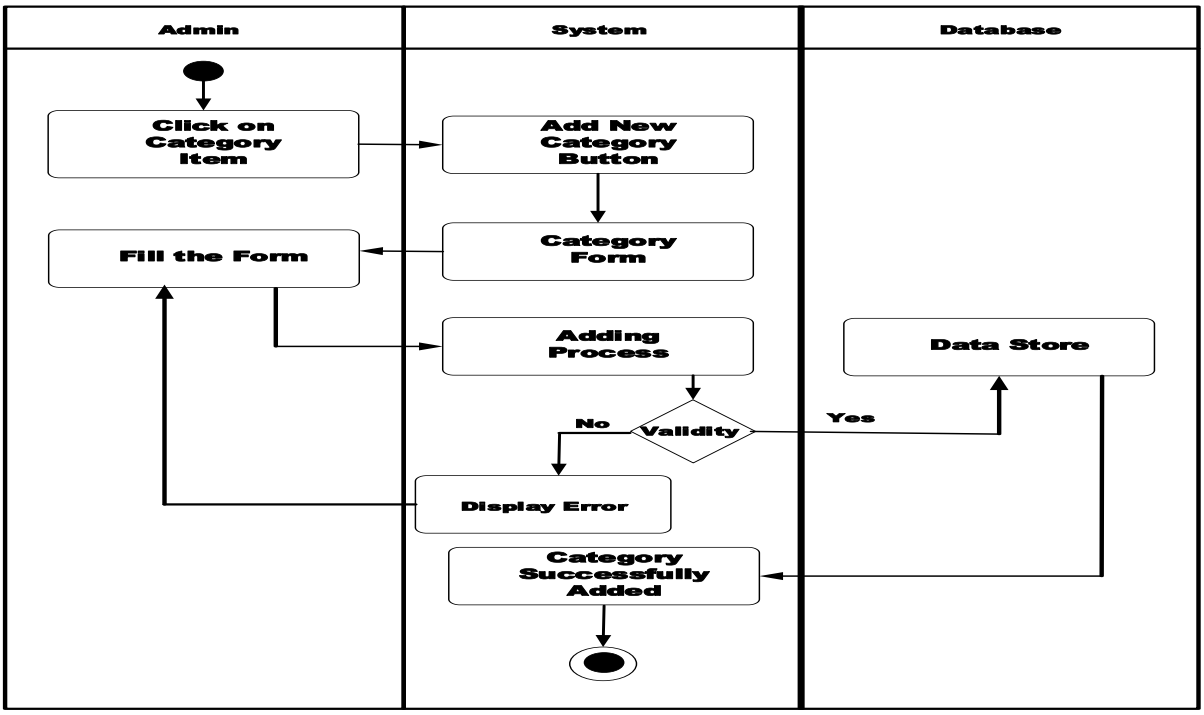


Figure 35: Category Add Activity Diagram.

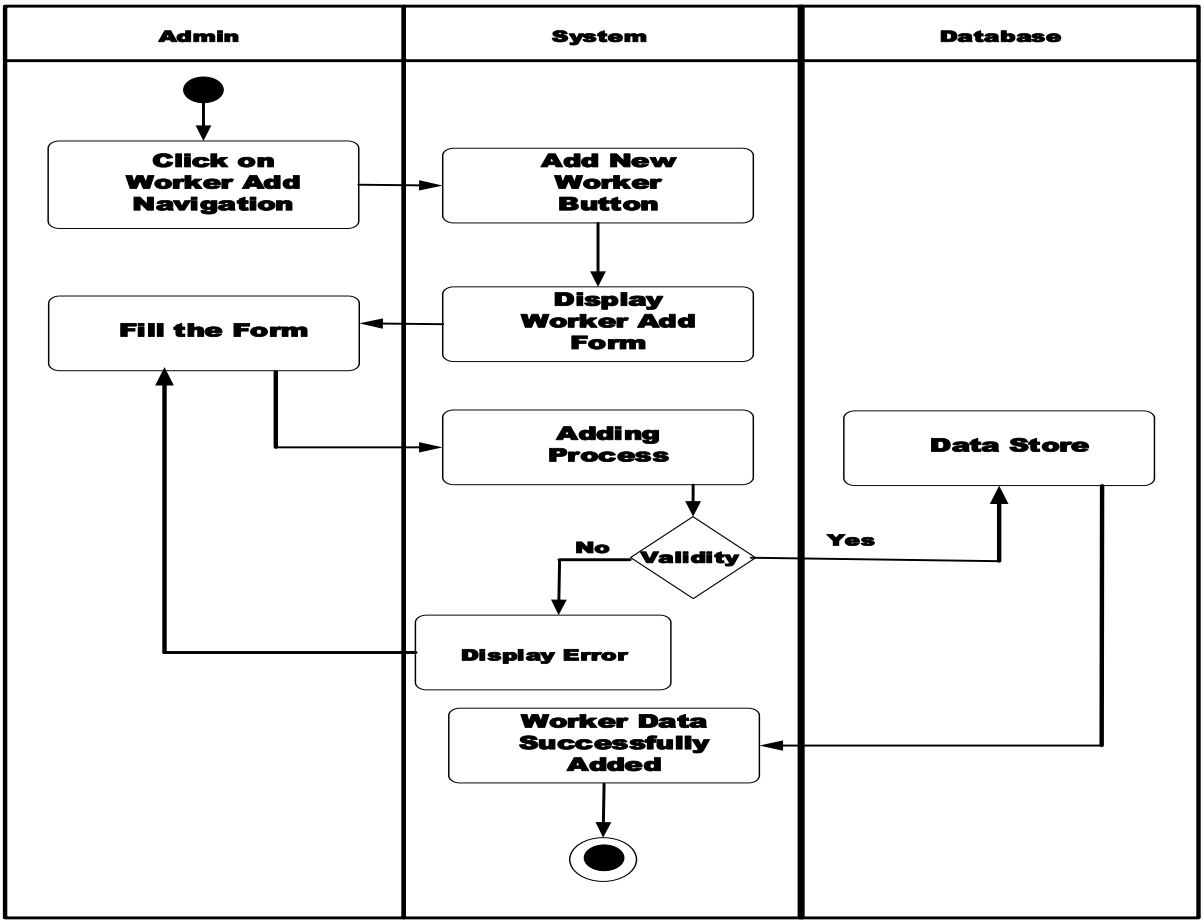


Figure 36: Worker Add Activity Diagram.

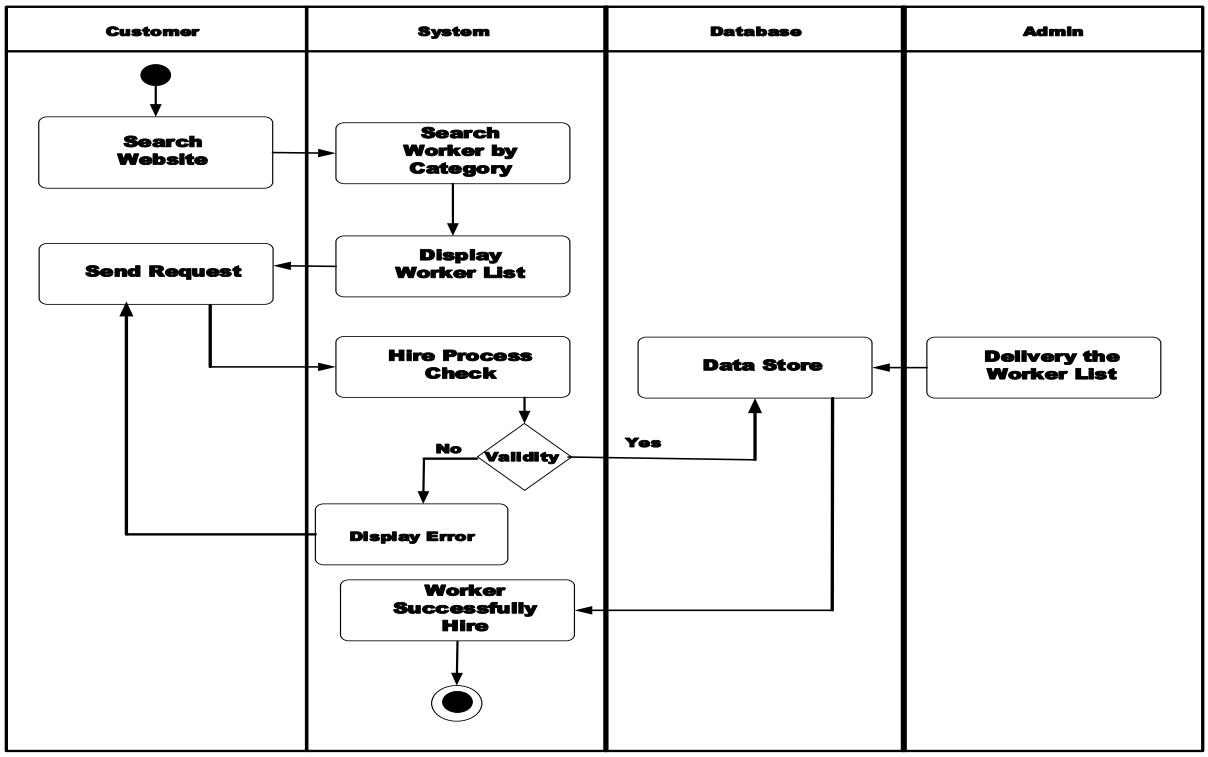


Figure 37: Hire Process Activity Diagram.

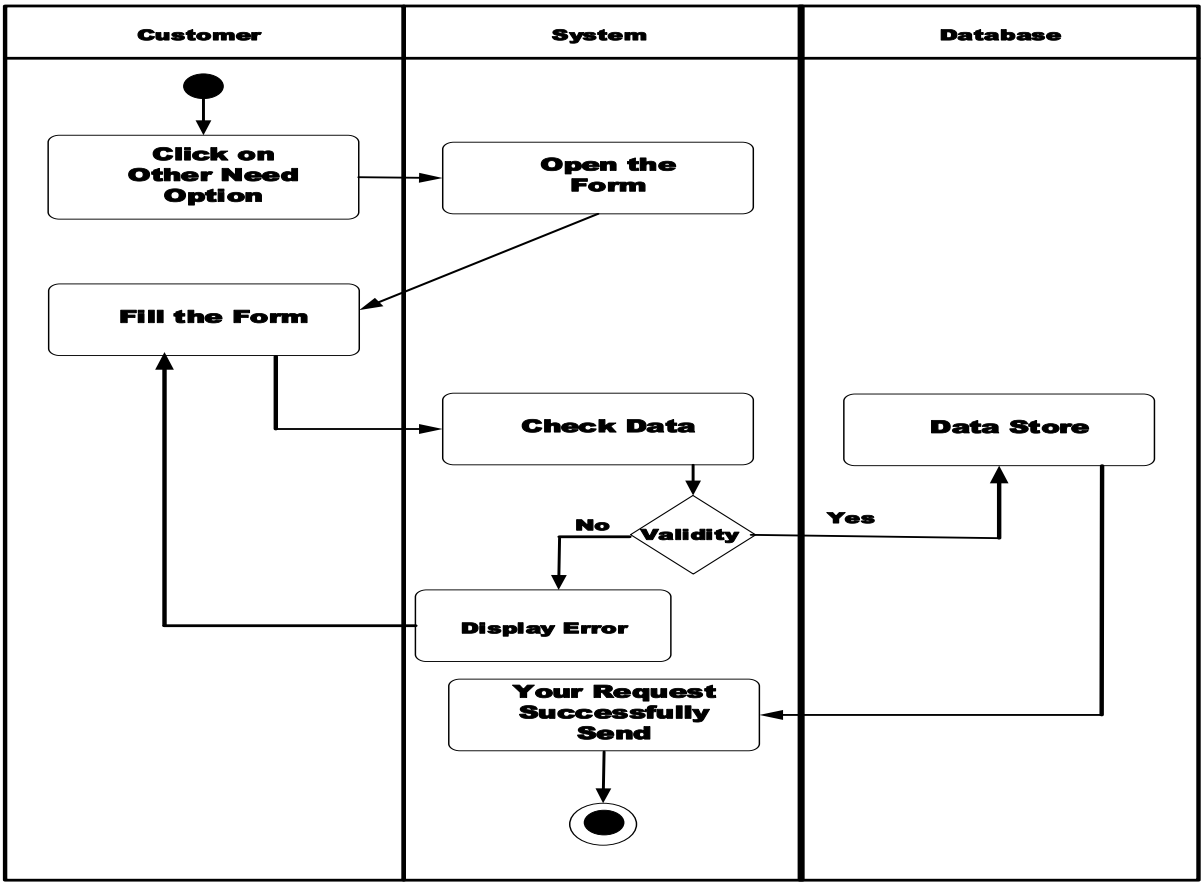


Figure 38: Send Request for Other Need.

9.5 Class Diagram

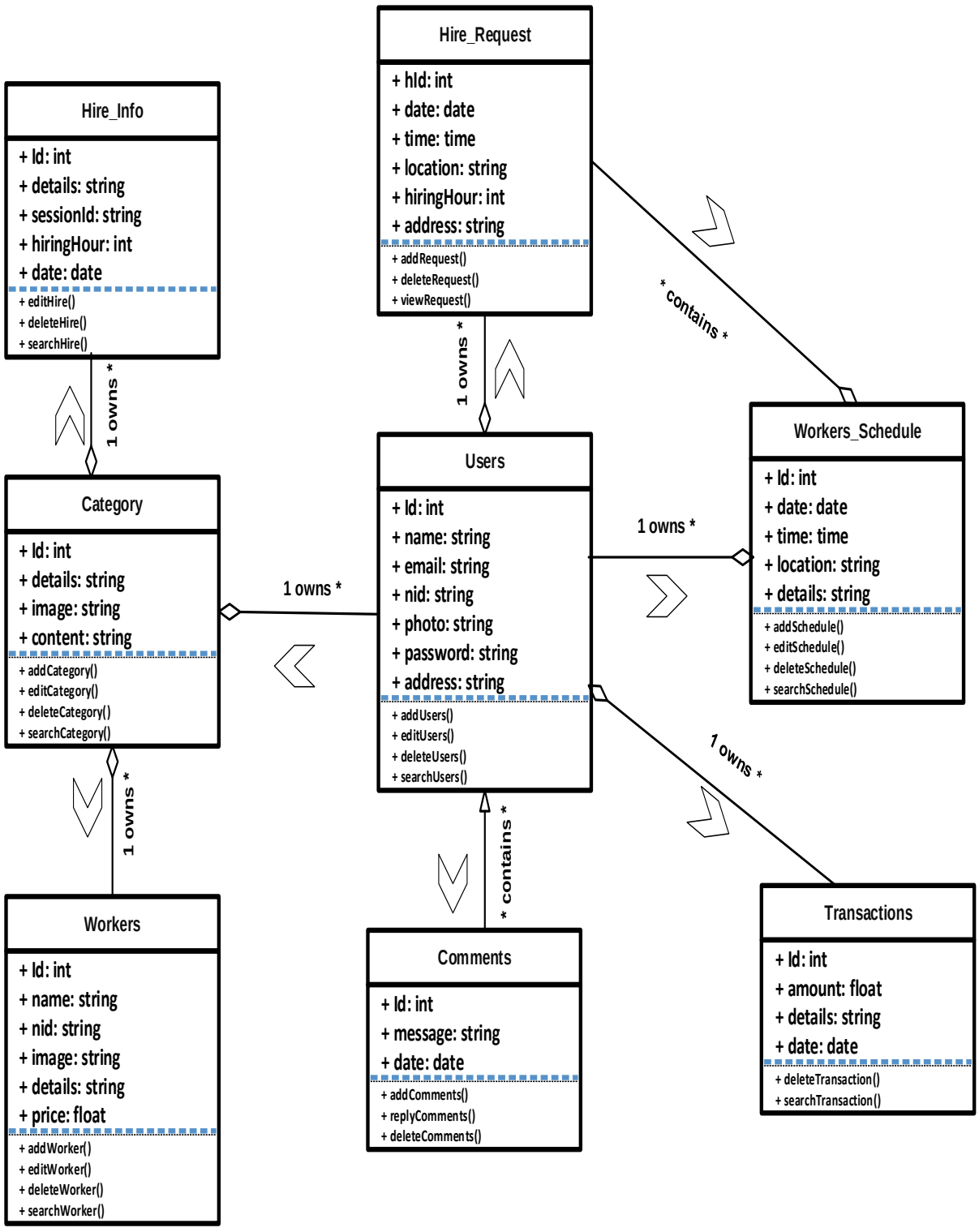


Figure 39: Class Diagram of HWH Project.

9.6 Enhanced Entity Relationship Diagram (EERD)

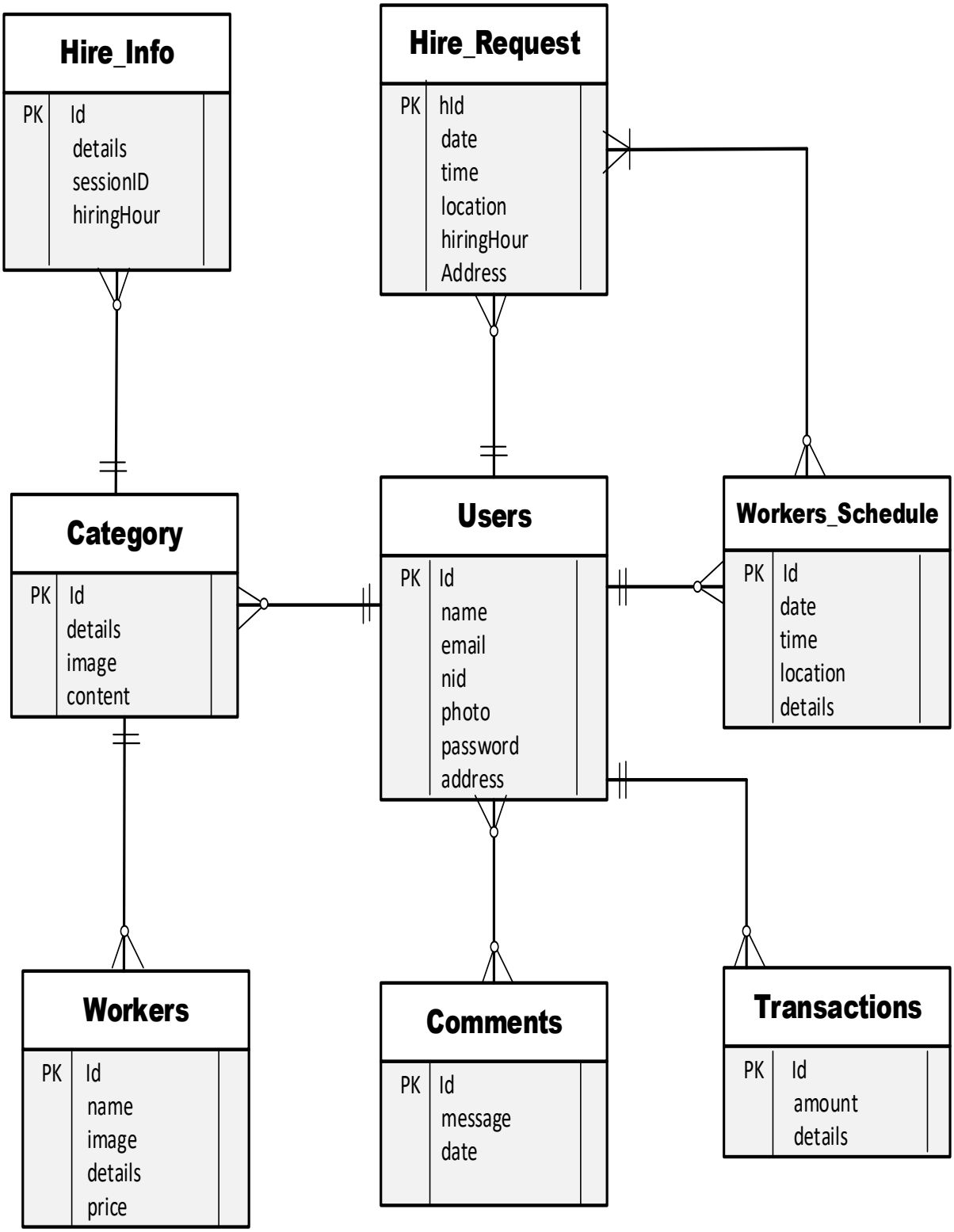


Figure 40: Enhanced Entity Relationship Diagram of this System.

9.7 Sequence Diagram

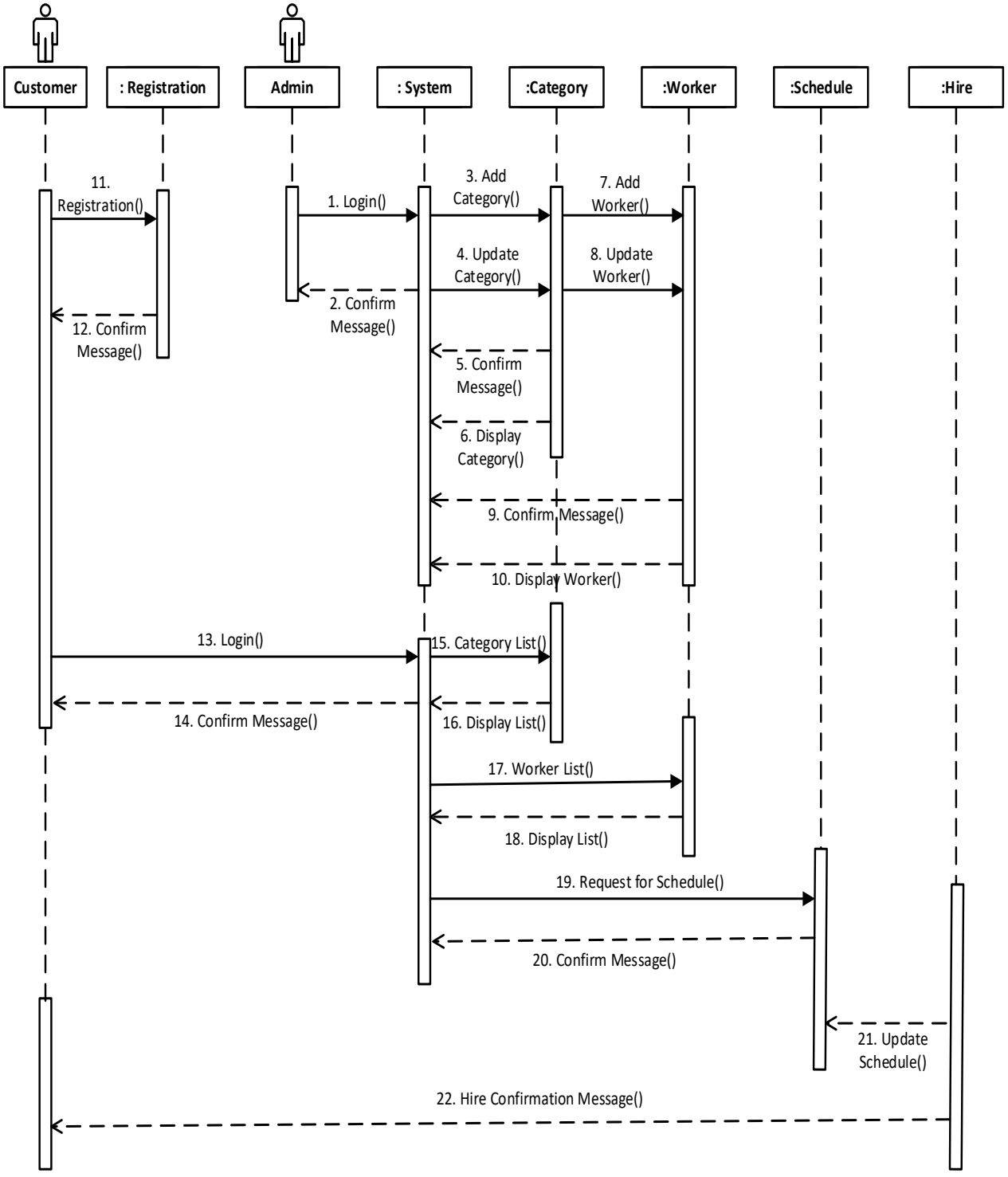


Figure 41: Sequence Diagram of this System.

9.8 Component Diagram

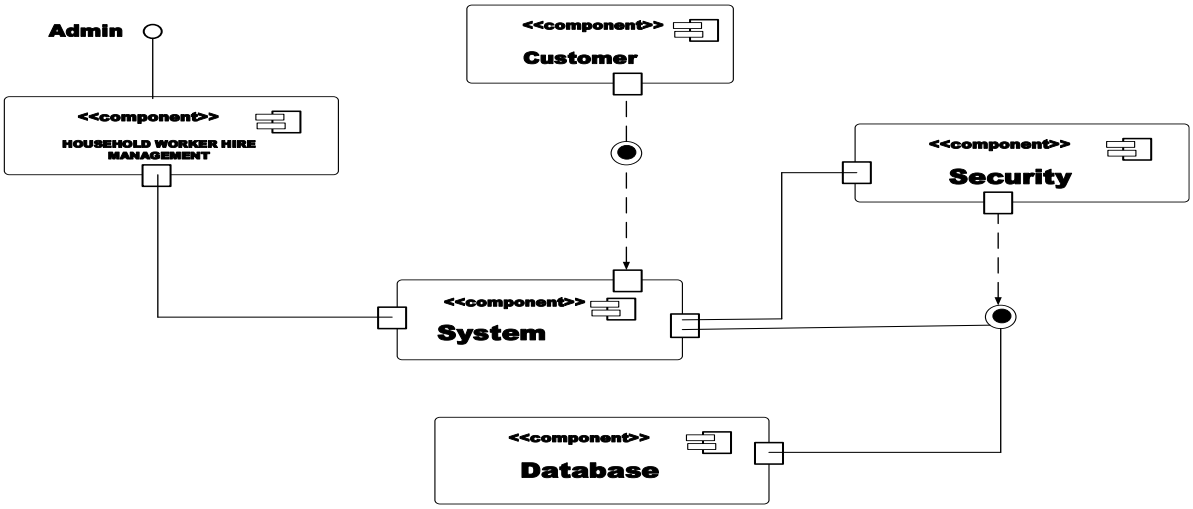


Figure 42: Component Diagram of HWH System.

9.9 Deployment Diagram

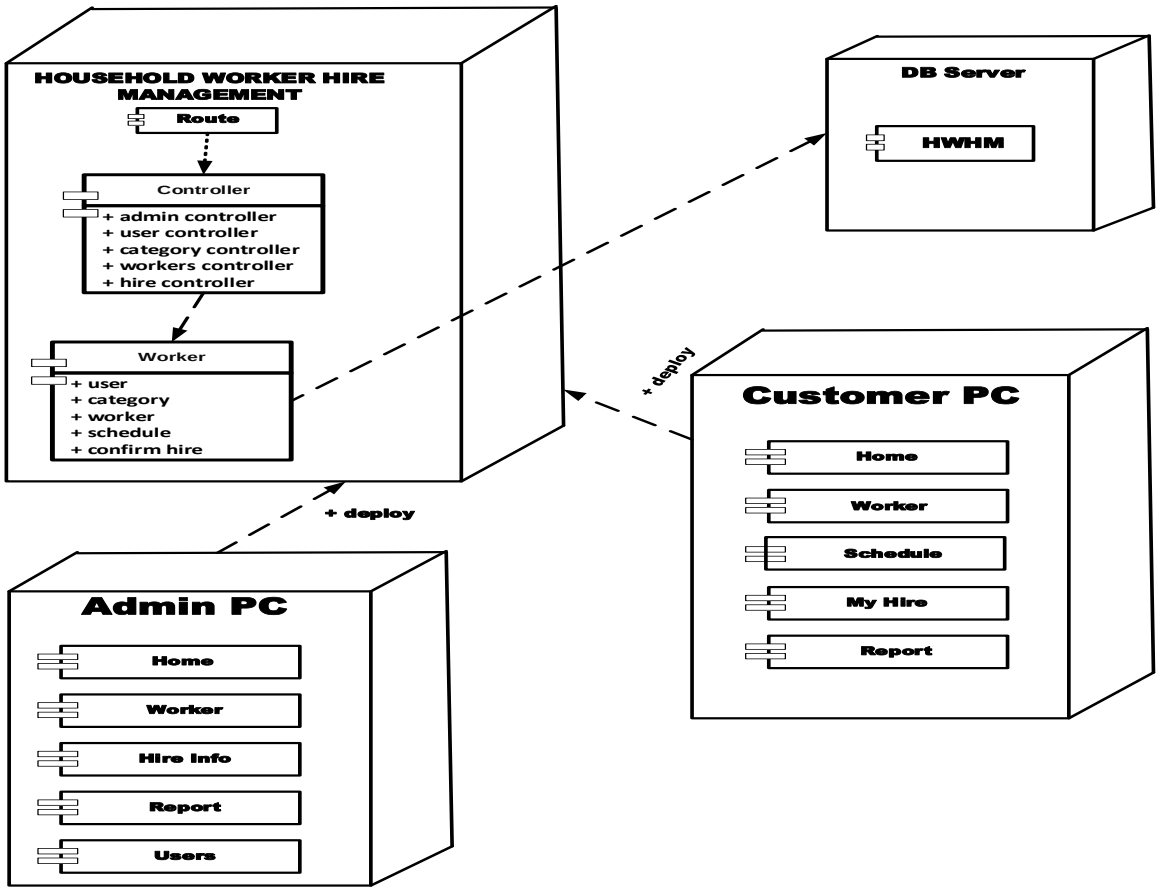


Figure 43: Deployment Diagram of HWH System.

9.10 System Interface Design

This part represents the deployed system's features looks. Here I have provided this system's completed interface design:

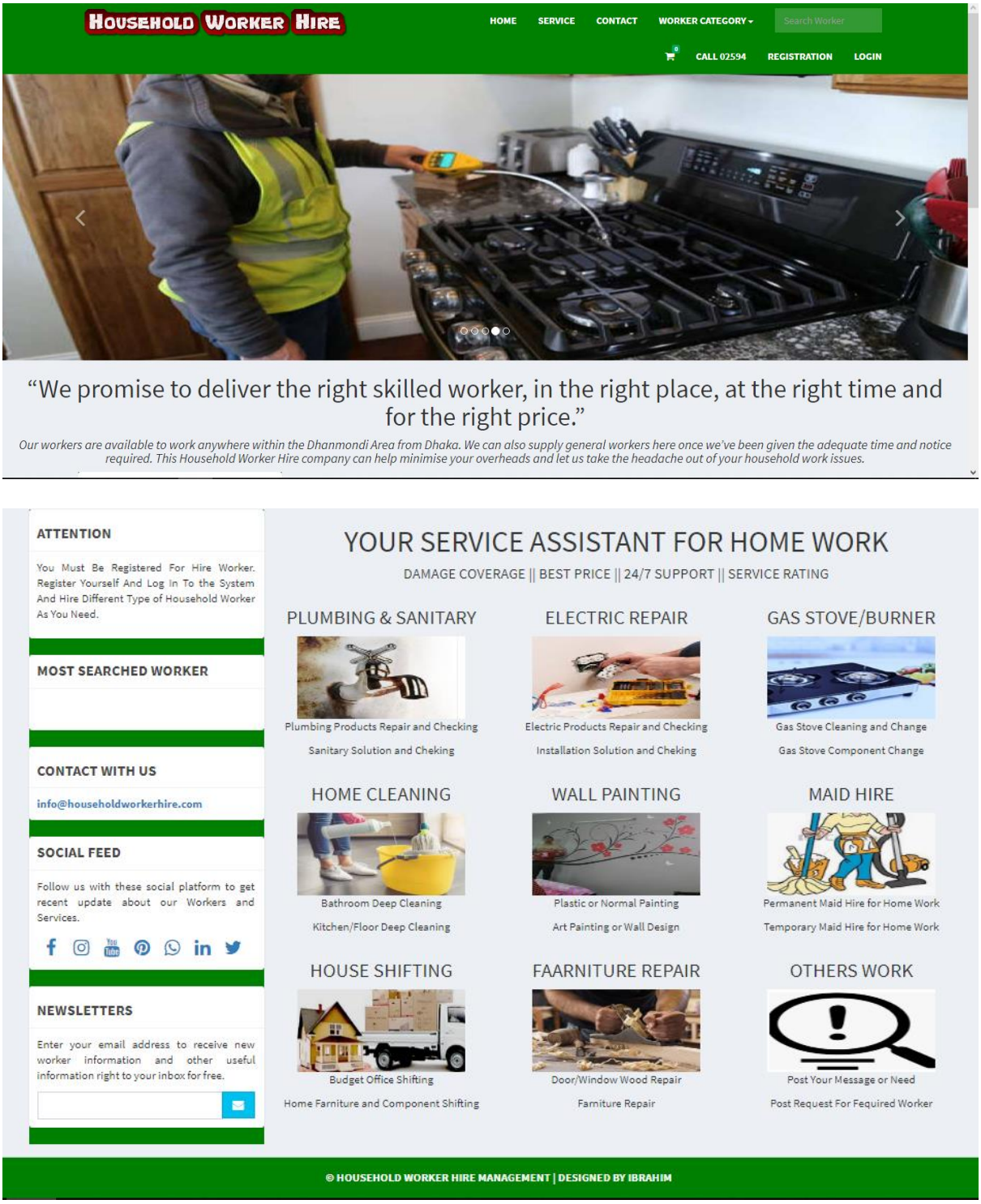


Figure 44: Home Page of Household Worker Hire Management System.

Figure 45: Service Details and Contact Page of the System.

Figure 46: User Log in Interface.

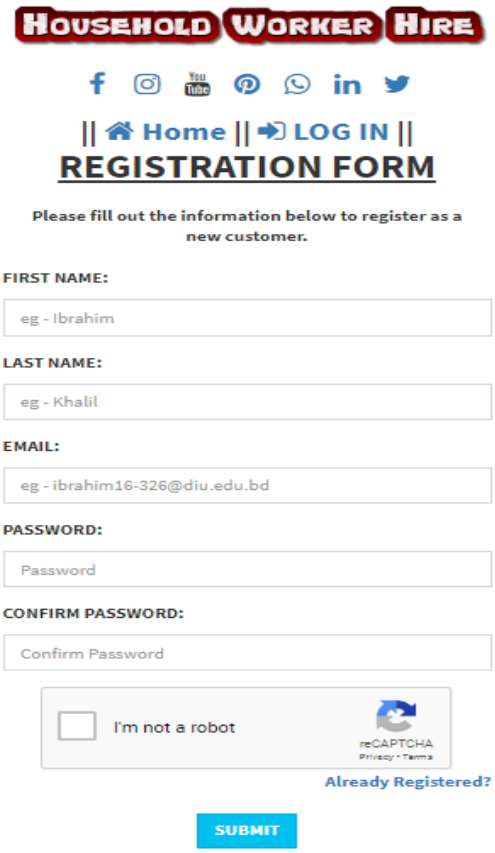


Figure 47: User Registration Interface.

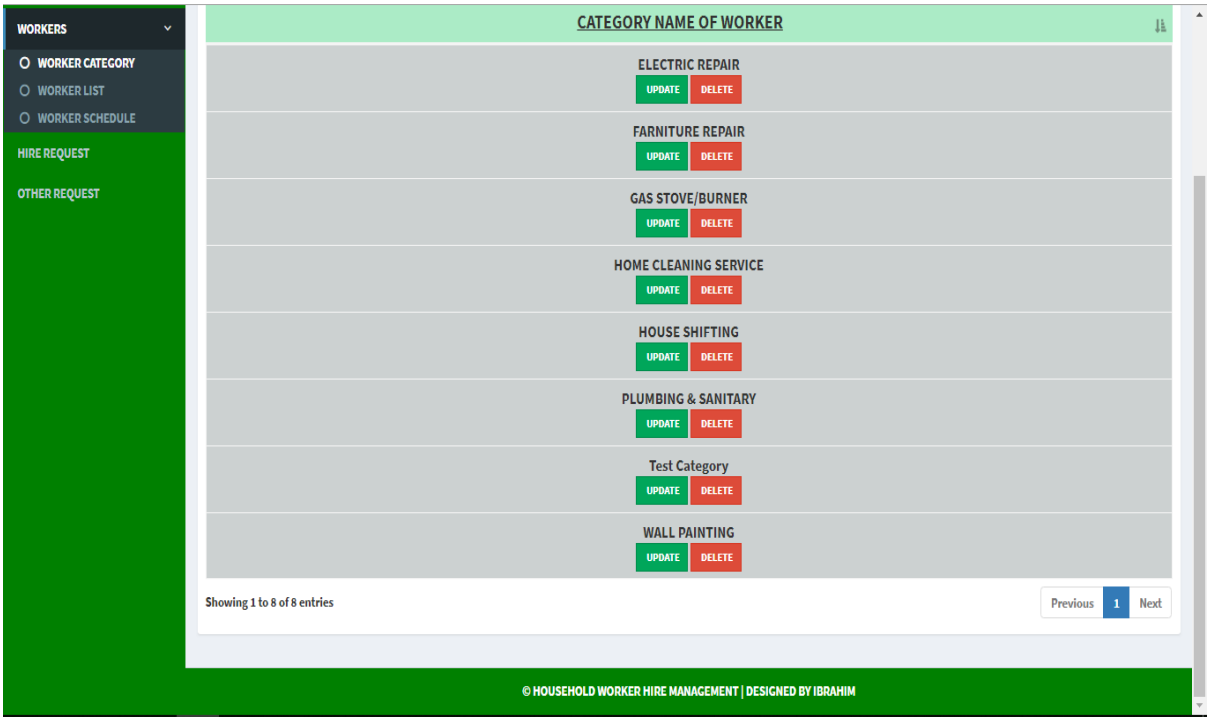


Figure 48: Category Creation Interface.

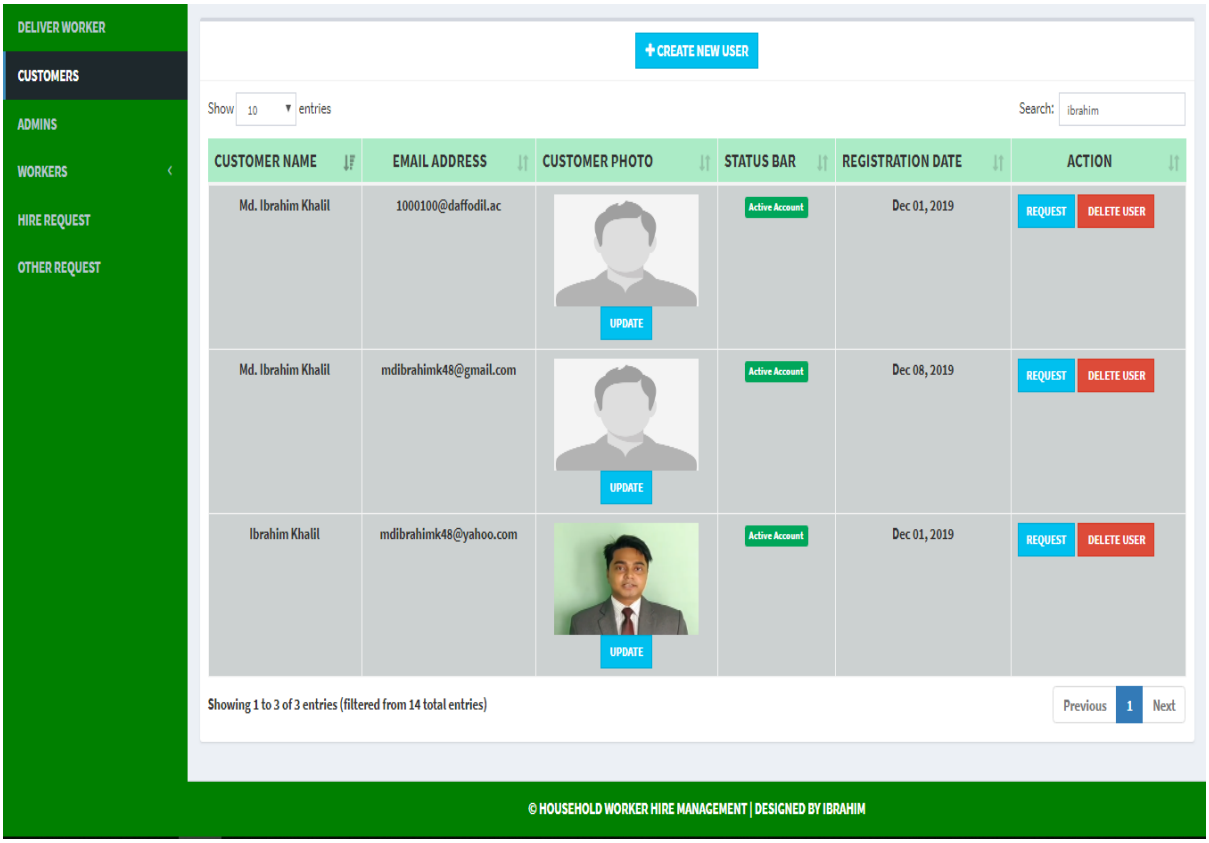


Figure 49: Customer Add Page Interface.

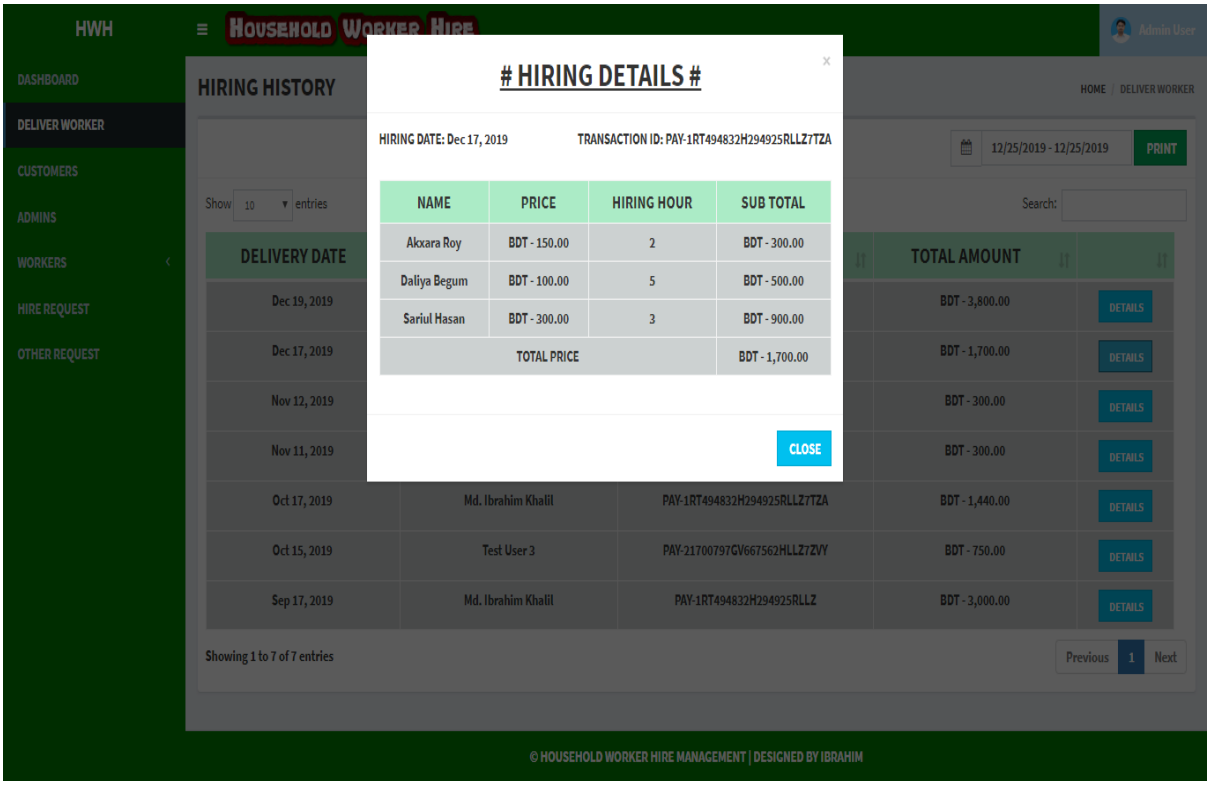


Figure 50: Details of Hiring Page.

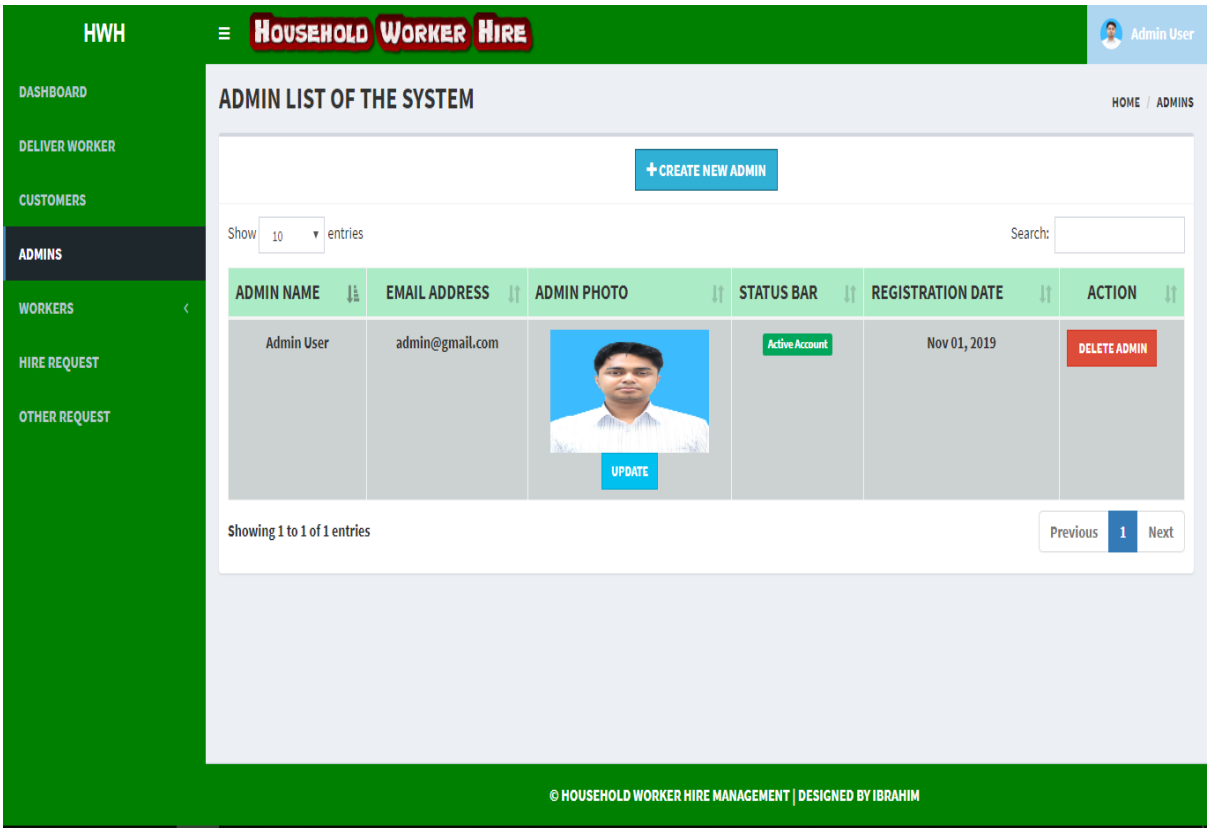


Figure 51: Create New Admin to the System.

Chapter – 10: Deployment

- The System Deployment Time Boxing
- Breaking Down the Possible Problem
- Sample of Core Module Coding

User requirements establish by code is called deployment of the computing project. This part or chapter is the discussion about deployment process, system code, deploy the high priority requirements and code description. Time boxing is following during development time. Here I have given all the description about system implementation and code description.

10.1 The System Deployment Time Boxing

For deploy this system I have followed time boxes and run iterative development. Time boxes break down the development into different tasks.

Time Boxes	Name	Description of Deliverables
01	Design of Databases	For household worker online business need proper database design with entity relationship diagram (ERD)
02	Interface Design	System's main design which fulfill the business requirements.
03	Development	Main development of the project. Easily hire management system for customers and company both.
04	Validations & Verifications	Proper development of the features with validations and verifications. Testing report of each feature.

10.2 Breaking down the Possible Problem of the System

During development time of any project – developer and business analyst faces lot of problem. To overcome from these problems we need to follow prioritization list. It divided works into little chunks. The breakdown list of this project:

Design of Databases	Interface Design	Development	Validations & Verifications
Find out the attributes, relationship find and implement it with SQL Query.	Design of each page with proper attribute and user friendly design and navigations.	Implement system with updated technologies; deploy the system with proper validations.	Write the test script following the system and match the result with business requirements.

10.3 Sample of the Core Module Coding

Here I give the screenshot of the core module code of this project.

10.3.1 Interface and Coding Screenshot

```
<div  class="col-sm-20">
    <big><big><big><b><center>|| <a href="index.php"><i class="fa fa-home"></i> Home</a> ||
     <a href="signup.php"><i class="fa fa-sign-in"></i> Registration</a> ||</center></b></big></big></big>
            <u><h1 class="login-box-msg"><b>LOG IN FORM</b></h1></u>
     <form action="verify.php" method="POST">
        <div class="form-group has-feedback">
            <p><b>EMAIL:</b></p>
            <input type="email" class="form-control" name="email" placeholder="eg - ibrahim16-326@diu.edu.bd" required>
        </div>
      <div class="form-group has-feedback">
        <p><b>PASSWORD:</b></p>
        <input type="password" class="form-control" name="password" placeholder="Password...." required>
      </div>
      <div align="right">
            <b><a href="password_forgot.php">Forgotten Password?</a></b>
        </div>
        <div class="row">
            <div class="col-xs-12">
               <center><button type="submit" class="btn btn-info btn-flat" name="login" style="margin-top: 10px"><b> LOG IN</b></button></center>
            </div>
        </div>
     </form>


     <center><u><h2 class='box-title'><b>SOCIAL FEED</b></h2></u></center>
     <center><div class='box-body'>
        <a class="btn btn-social-icon btn-"><i class="fa fa-facebook"></i></a>
        <a class="btn btn-social-icon btn-"><i class="fa fa-instagram"></i></a>
        <a class="btn btn-social-icon btn-"><i class="fa fa-youtube"></i></a>
        <a class="btn btn-social-icon btn-"><i class="fa fa-pinterest"></i></a>
        <a class="btn btn-social-icon btn-"><i class="fa fa-whatsapp"></i></a>
        <a class="btn btn-social-icon btn-"><i class="fa fa-linkedin"></i></a>
        <a class="btn btn-social-icon btn-"><i class="fa fa-twitter"></i></a>
     </div></center>
        <center><b><a>info@householdworkerhire.com</a></b></center>
   </div>
</div>
```

Code Description:

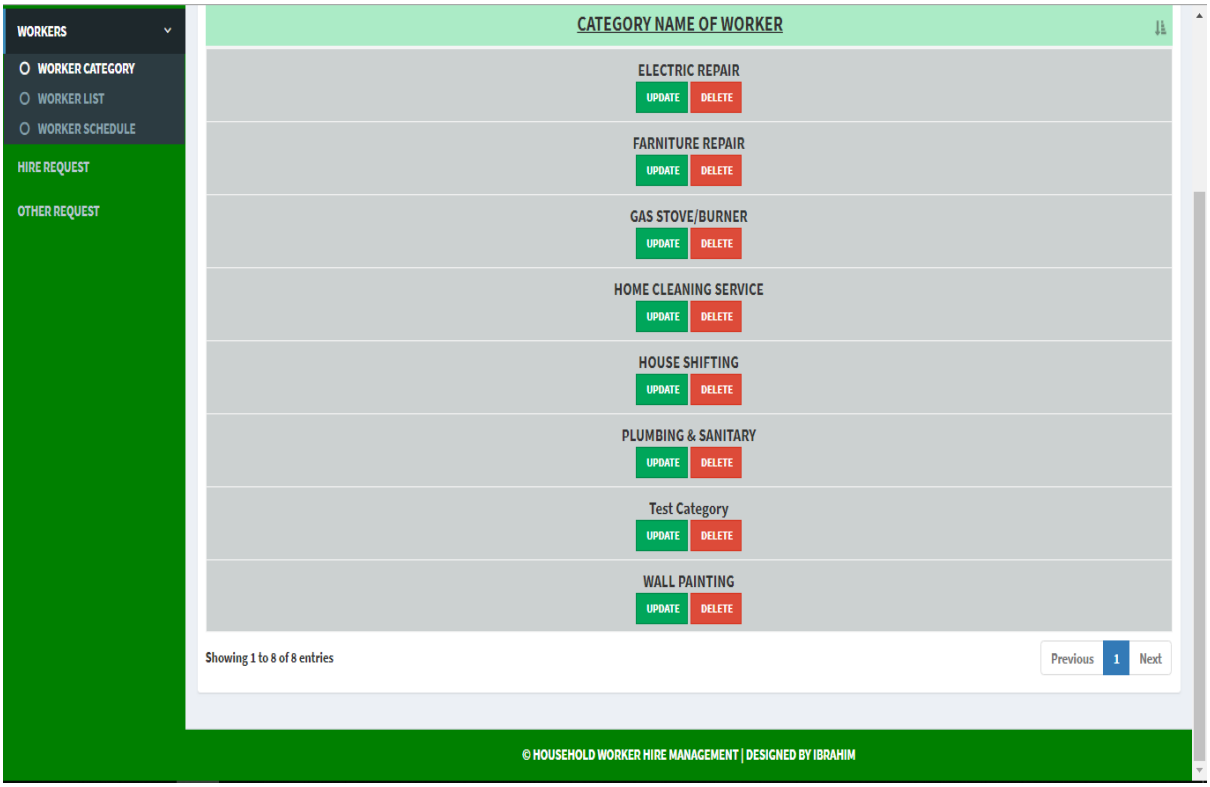
This PHP code is used for log into the system with proper validation and verifications. This is easy understandable code which is connected with database. MySQL is used for log into the system.

Registration Page Interface & Code:


```php
<?php include 'includes/session.php'; ?>
<?php
  if(isset($_SESSION['user'])){
    header('location: cart_view.php');
  }

  if(isset($_SESSION['captcha'])){
    $now = time();
    if($now >= $_SESSION['captcha']){
      unset($_SESSION['captcha']);
    }
  }

?>
<?php include 'includes/header.php'; ?>
<body class="hold-transition register-page" style="background:white">
<div class="register-box">
        <img src="images/icon.png" height="54">
    <?php
      if(isset($_SESSION['error'])){
        echo "
          <div class='callout callout-danger text-center'>
            <p>".$_SESSION['error']."</p>
          </div>
        ";
        unset($_SESSION['error']);
      }

      if(isset($_SESSION['success'])){
        echo "
          <div class='callout callout-success text-center'>
            <p>".$_SESSION['success']."</p>
          </div>
        ";
        unset($_SESSION['success']);
      }
    ?>
        <center><div class='box-body'>
            <a class="btn btn-social-icon btn-"><i class="fa fa-facebook"></i></a>
```

```
<div class="col-sm-30">
    <big><big><big><b><center>|| <a href="index.php"><i class="fa fa-home"></i> Home</a> ||
    <a href="login.php"><i class="fa fa-sign-in"></i> LOG IN</a> ||</center></b></big></big></big>
        <u><h2 class="login-box-msg"><b>REGISTRATION FORM</b></h2></u>
    <p class="login-box-msg"><b>Please fill out the information below to register as a new customer.</b></p>

    <form action="register.php" method="POST" style="weidth=100%">
      <div class="form-group has-feedback">
        <p><b>FIRST NAME:</b></p>
        <input type="text" class="form-control" name="firstname" placeholder="eg - Ibrahim" value="<?php echo (isset($_SESSION['firstname'])) ? $_SESSION['firstname'] : '' ?>" req
      </div>
      <div class="form-group has-feedback">
        <p><b>LAST NAME:</b></p>
        <input type="text" class="form-control" name="lastname" placeholder="eg - Khalil" value="<?php echo (isset($_SESSION['lastname'])) ? $_SESSION['lastname'] : '' ?>"  requir
      </div>
        <div class="form-group has-feedback">
        <p><b>EMAIL:</b></p>
            <input type="email" class="form-control" name="email" placeholder="eg - ibrahim16-326@diu.edu.bd" value="<?php echo (isset($_SESSION['email'])) ? $_SESSION['email'] :
        </div>
      <div class="form-group has-feedback">
        <p><b>PASSWORD:</b></p>
        <input type="password" class="form-control" name="password" placeholder="Password" required>
      </div>
      <div class="form-group has-feedback">
        <p><b>CONFIRM PASSWORD:</b></p>
        <input type="password" class="form-control" name="repassword" placeholder="Confirm Password" required>
      </div>
      <center><?php
        if(!isset($_SESSION['captcha'])){
          echo '
            <di class="form-group" style="width:100%;">
              <div class="g-recaptcha" data-sitekey="6LevOlIUAAAAAFX5PpmtEoCxwae-I8cCQrbhTfM6"></div>
            </di>
          ';
        }
      ?></center>
```

Category set Page Interface & Code:



```
<div class="row">
  <div class="col-xs-12">
    <div class="box">
      <div class="box-header with-border">
        <center><a href="#addnew" data-toggle="modal" class="btn btn-info btn-flat"><i class="fa fa-plus"></i><b> CREATE NEW CATEGORY</b></a></center>
      </div>
      <div class="box-body">
        <table id="example1" class="table table-bordered">
          <thead>
            <th><big><big><b>CATEGORY NAME OF WORKER</b></big></th>
            <th><big><big><b>ACTIONS</b></big></big></th>
          </thead>
          <tbody>
            <?php
              $conn = $pdo->open();

              try{
                $stmt = $conn->prepare("SELECT * FROM category");
                $stmt->execute();
                foreach($stmt as $row){
                  echo "
                    <tr>
                      <td>".$row['name']."</td>
                      <td>
                        <button class='btn btn-success btn-sm edit btn-flat' data-id='".$row['id']."'><i class='fa fa-'></i><b> UPDATE</b></button>
                        <button class='btn btn-danger btn-sm delete btn-flat' data-id='".$row['id']."'><i class='fa fa-'></i><b> DELETE</b></button>
                      </td>
                    </tr>
                  ";
                }
              }
              catch(PDOException $e){
                echo $e->getMessage();
              }

              $pdo->close();
            ?>
          </tbody>
        </table>
      </div>
```

```
    <?php include 'includes/footer.php'; ?>
    <?php include 'includes/category_modal.php'; ?>

</div>
<!-- ./wrapper -->

<?php include 'includes/scripts.php'; ?>
<script>
$(function(){
  $(document).on('click', '.edit', function(e){
    e.preventDefault();
    $('#edit').modal('show');
    var id = $(this).data('id');
    getRow(id);
  });

  $(document).on('click', '.delete', function(e){
    e.preventDefault();
    $('#delete').modal('show');
    var id = $(this).data('id');
    getRow(id);
  });

});

function getRow(id){
  $.ajax({
    type: 'POST',
    url: 'category_row.php',
    data: {id:id},
    dataType: 'json',
    success: function(response){
      $('.catid').val(response.id);
      $('#edit_name').val(response.name);
      $('.catname').html(response.name);
    }
  });
}
</script>
```

Chapter – 11: Testing

- Criteria of Testing
- Test Plan
- Test Log
- Summary

For checking systems performance, quality or find out the defect – testing is needed. This process will be done during development time. After completing each tasks testing are done. If testing's output fulfills the business requirements, then project goal will be fulfilled. Testing ensures systems quality and make it deliverable.

11.1 Criteria of the Testing

In computer science there are many types of project testing criteria in the world. For this project I have also make some test plan and criteria. My selected testing criteria are:

- ✓ Unit Testing
- ✓ Integration Testing
- ✓ Module Testing
- ✓ Security Testing
- ✓ Performance Testing

11.2 Test plan of the System

Plan is needed for starting any kinds of work. Test plan is about how the testing method would apply for measure the system. Here I have select the features of each testing plan. Selected testing criteria's plan given below:

Criteria	Unit
Plan 1 (Unit Testing)	✚ Validation and verification for user log in of this worker hire management system. ✚ Validation and verification for user registration in of this worker hire management system.
Plan 2 (Integration Testing)	✚ Worker hires confirmation testing. ✚ Hiring request send for different types of worker and update schedule.
Plan 3 (Module Testing)	✚ System controller of hire. ✚ Form controller for hiring worker.
Plan 4 (Security Testing)	✚ Log in attempts check. ✚ Proper authentication of each page.
Plan 5 (Performance Testing)	✚ Easily update the worker's category data. ✚ Easily update the worker's data.

11.3 Test log of the System

Test log is the description of the testing result of the project. Here comparisons are made using actual result with expected result. Each testing plan log is given below:

11.3.1 Test Log 1 (Unit Testing)

Name and ID:	Unit Testing – UT01		
Name of the Test:	Validation for User Registration		
Details of the Test:	Validation of add new user form.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Company Admin	Try to save without enter any data in the form.	Error message – force to enter data.	System shows the message perfectly.

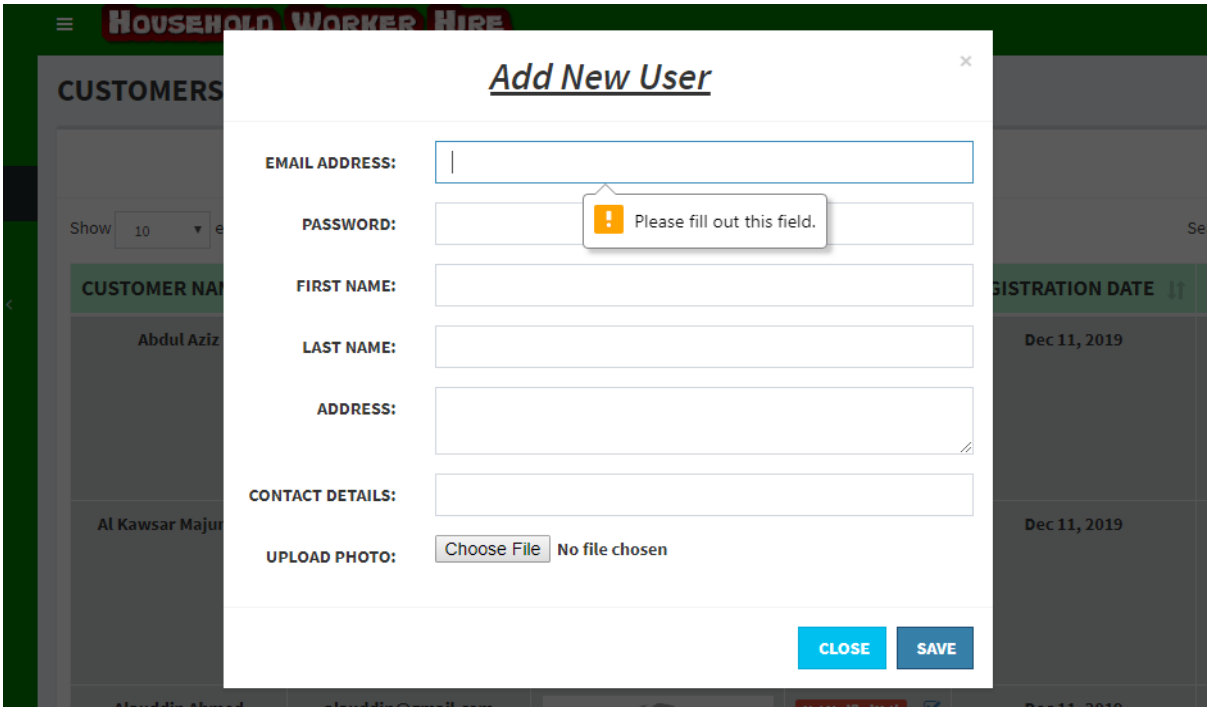


Figure 52: User form Validation.

Name and ID:	Unit Testing – UT02		
Name of the Test:	Validation for Email Field		
Details of the Test:	Validation of add new user and their email.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Customer	Try to save register data without giving - @ in email field.	Error message – @ is missing in email field.	System shows the message perfectly.

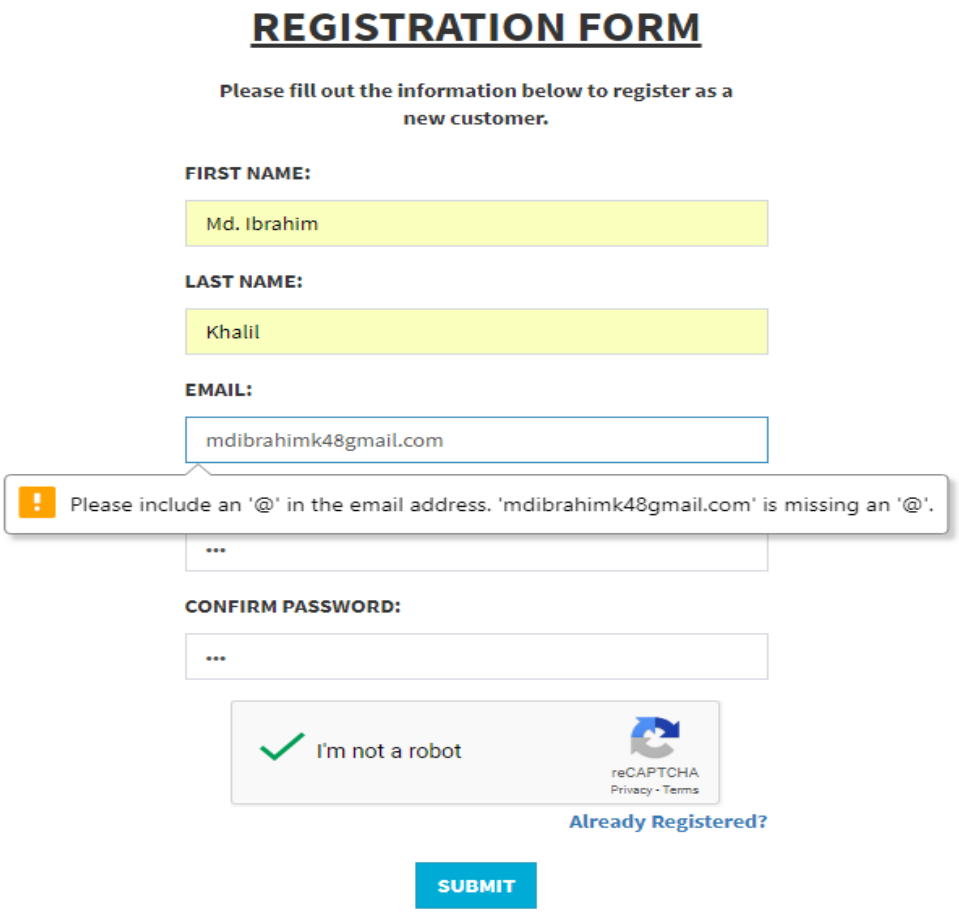


Figure 53: Email Address Checking.

Name and ID:	Unit Testing – UT03

Name of the Test:	Google Check		
Details of the Test:	Validation for Checking data.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Customer	Try to submit data without click re chaptcha button.	Error message – verification expired.	System shows the message perfectly.

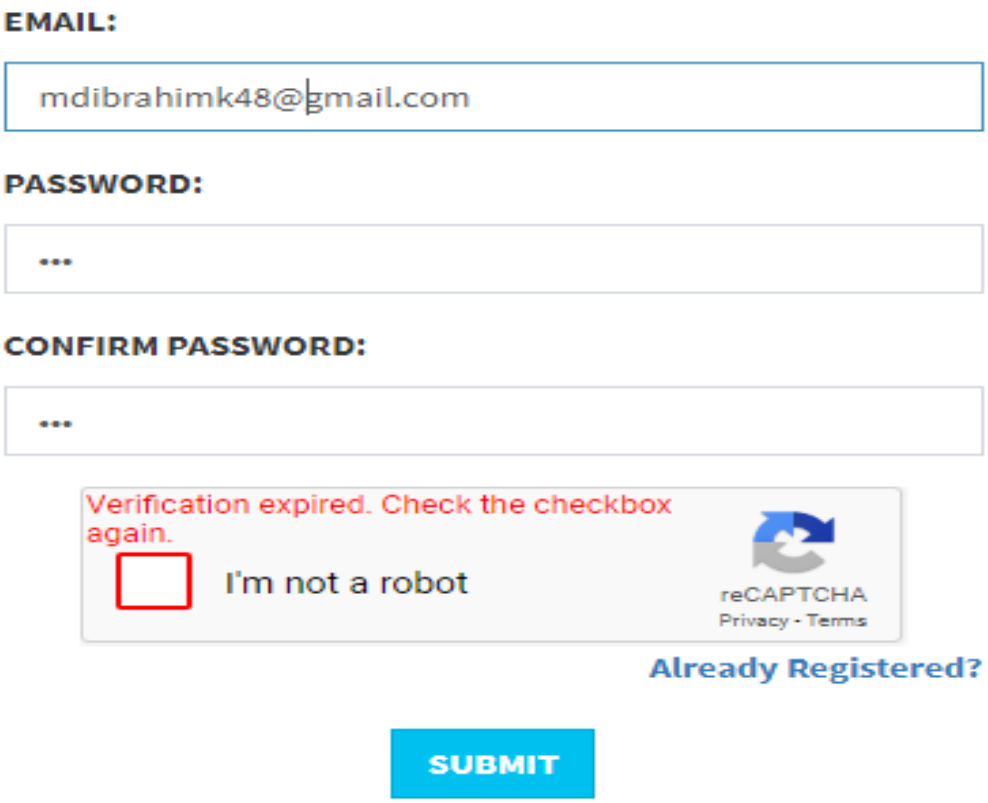


Figure 54: Re chaptcha Check by Google.

11.3.2 Test Log 2 (Integration Testing)

Name and ID:	Integration Testing – IT01		
Name of the Test:	System Control With Authentication.		
Details of the Test:	Enter the system by logging.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Customer	Try to log into the system with validate data.	Successful log into the system and go to the basket page.	System shows the perfectly which is expected.

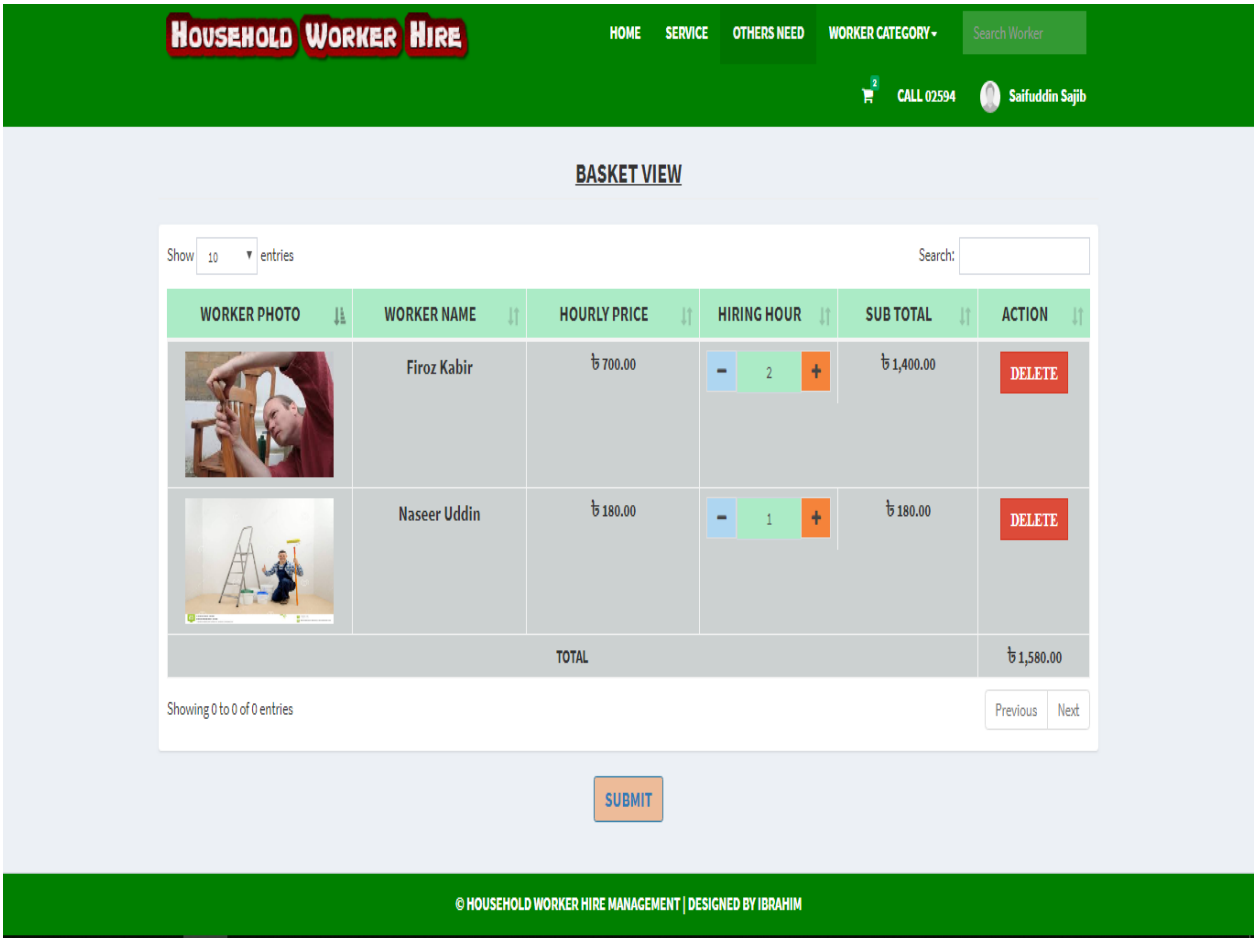


Figure 55: System Login (Enter).

Name and ID:	Integration Testing – IT02		
Name of the Test:	Category Control and Add Worker in the category.		
Details of the Test:	Enter a category and Add Worker by Using this Category.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Company Admin	Enter category list and show it in worker page.	Category can show in drop down list of the system.	System shows list perfectly which is expected.

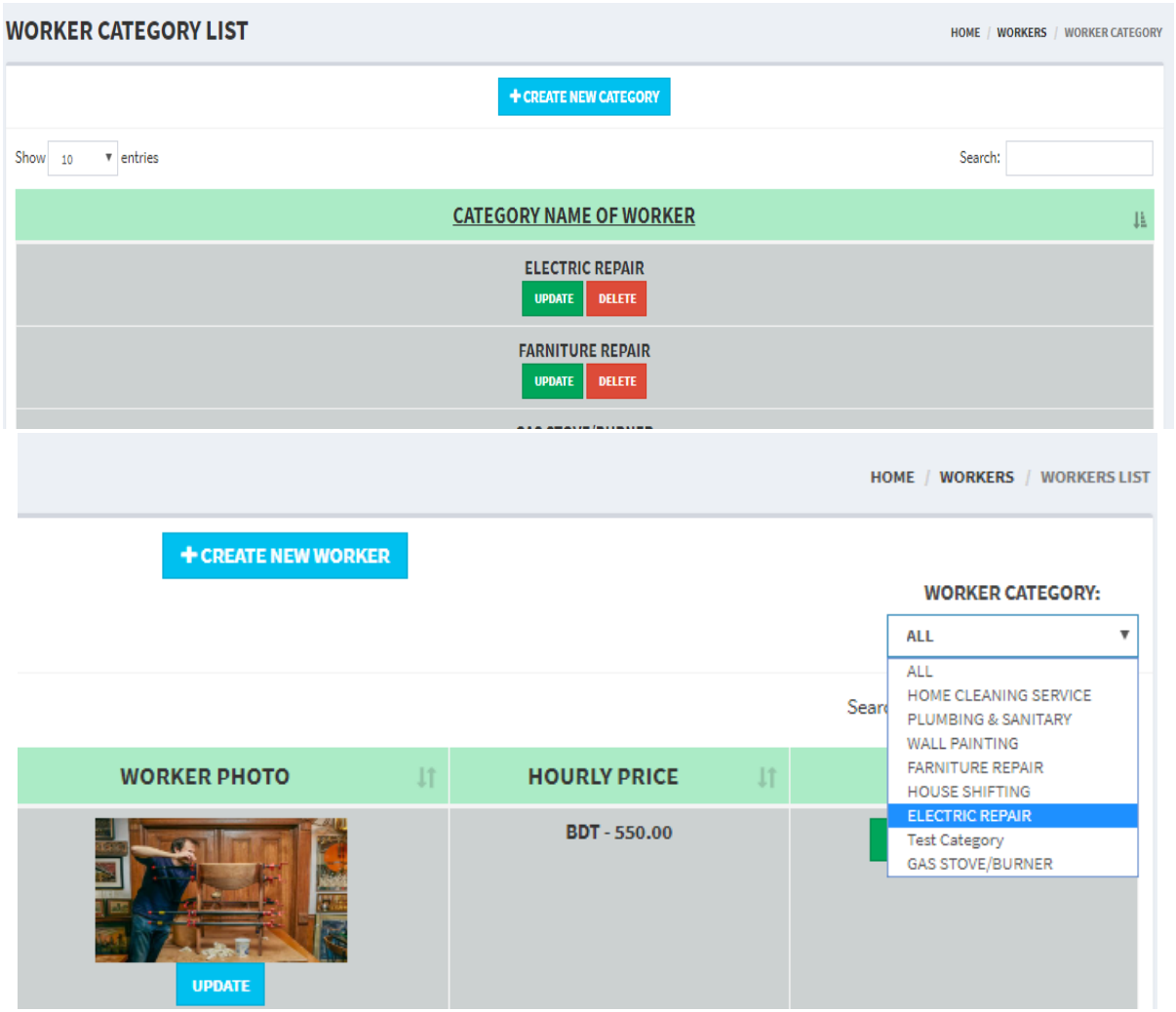


Figure 56: Category Control for Adding Workers.

11.3.3 Test Log 3 (Module Testing)

Name and ID:	Module Testing – MT01		
Name of the Test:	Module Test of User Form.		
Details of the Test:	Validation of customer registration data.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Customer	Submit invalid data.	System shows data are invalid.	System shows message perfectly which is expected.

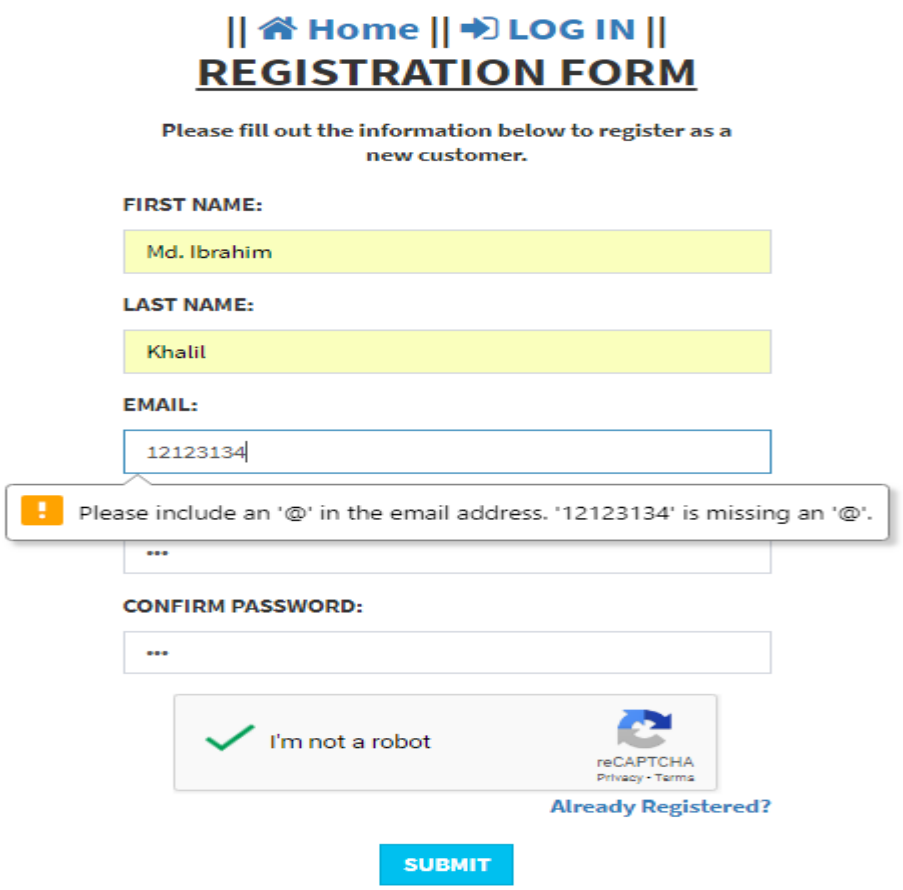


Figure 57: Shows That Data are Invalid.

Name and ID:	Module Testing – MT02		
Name of the Test:	Login Controller with Data.		
Details of the Test:	Validation of log in attempt data.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Customer	Try to log in the system without input.	System shows data need to be entered.	System shows message perfectly which is expected.

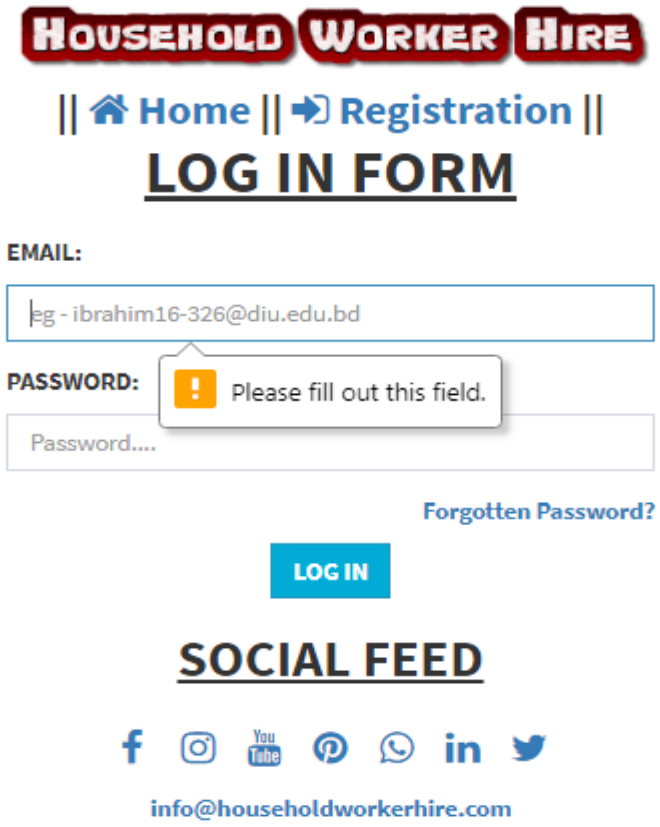


Figure 58: Log in Form Control.

11.3.4 Test Log 4 (Security Testing)

Name and ID:	Security Testing – ST01		
Name of the Test:	Login Controller for Wrong Password.		
Details of the Test:	Given wrong password for log into the system.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Customer	Try to log in the system with wrong password.	System shows that – you have entered incorrect password.	System shows message perfectly which is expected.

Figure 59: Password Validation.

Name and ID:	Security Testing – ST02		
Name of the Test:	Form control Check by Google.		
Details of the Test:	Given wrong password for log into the system.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Customer	Try to log in the system without answering Re Chaptcha.	System shows that – please answer recapthcha correctly.	System shows message perfectly which is expected.

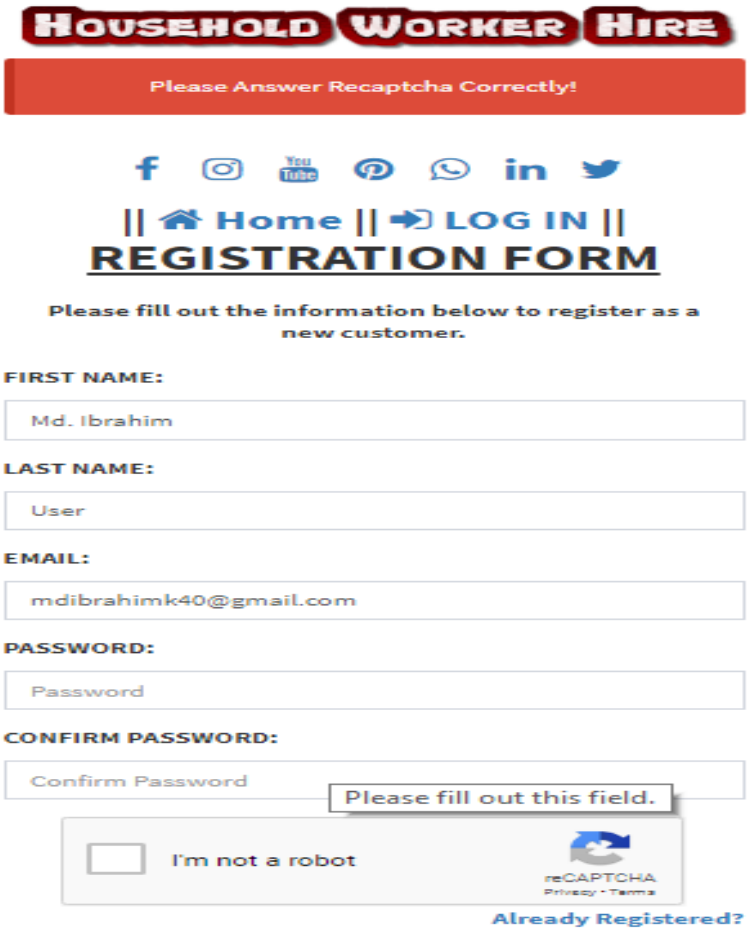


Figure 60: Security Check.

11.3.5 Test Log 5 (Performance Testing)

Name and ID:	Performance Testing – PT01		
Name of the Test:	Form performance measure.		
Details of the Test:	Update the worker's category.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Customer	Update category test category from – test category 1.	System shows that – worker category successfully updated.	System shows message perfectly which is expected.

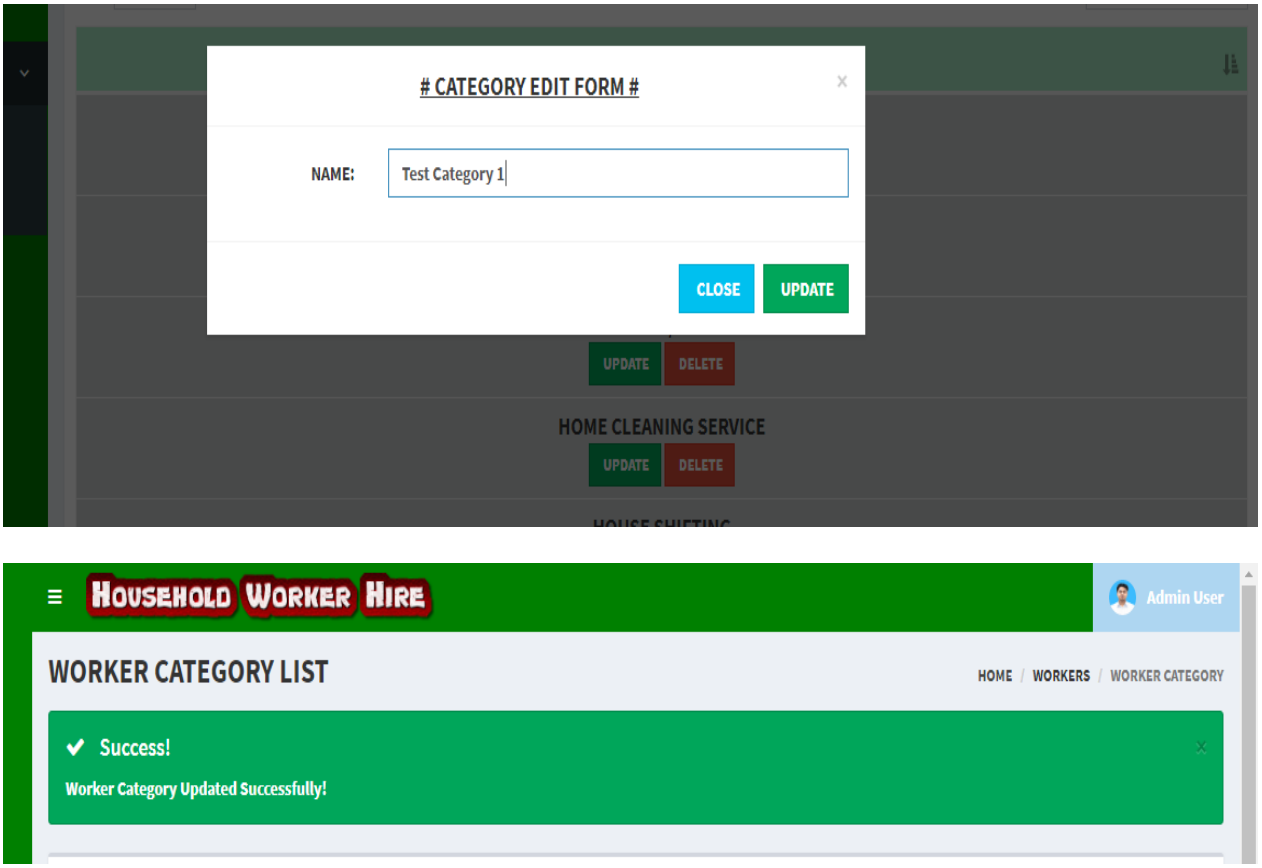


Figure 61: Category Update Control.

Name and ID:	Performance Testing – PT02		
Name of the Test:	Form performance measure by deleting a worker data.		
Details of the Test:	Delete the worker's data.		
Source of the Data	**Action Doing**	**Expected Result**	**Actual Result**
Customer	Delete worker– test worker 1.	System shows that – worker's data successfully deleted.	System shows message perfectly which is expected.

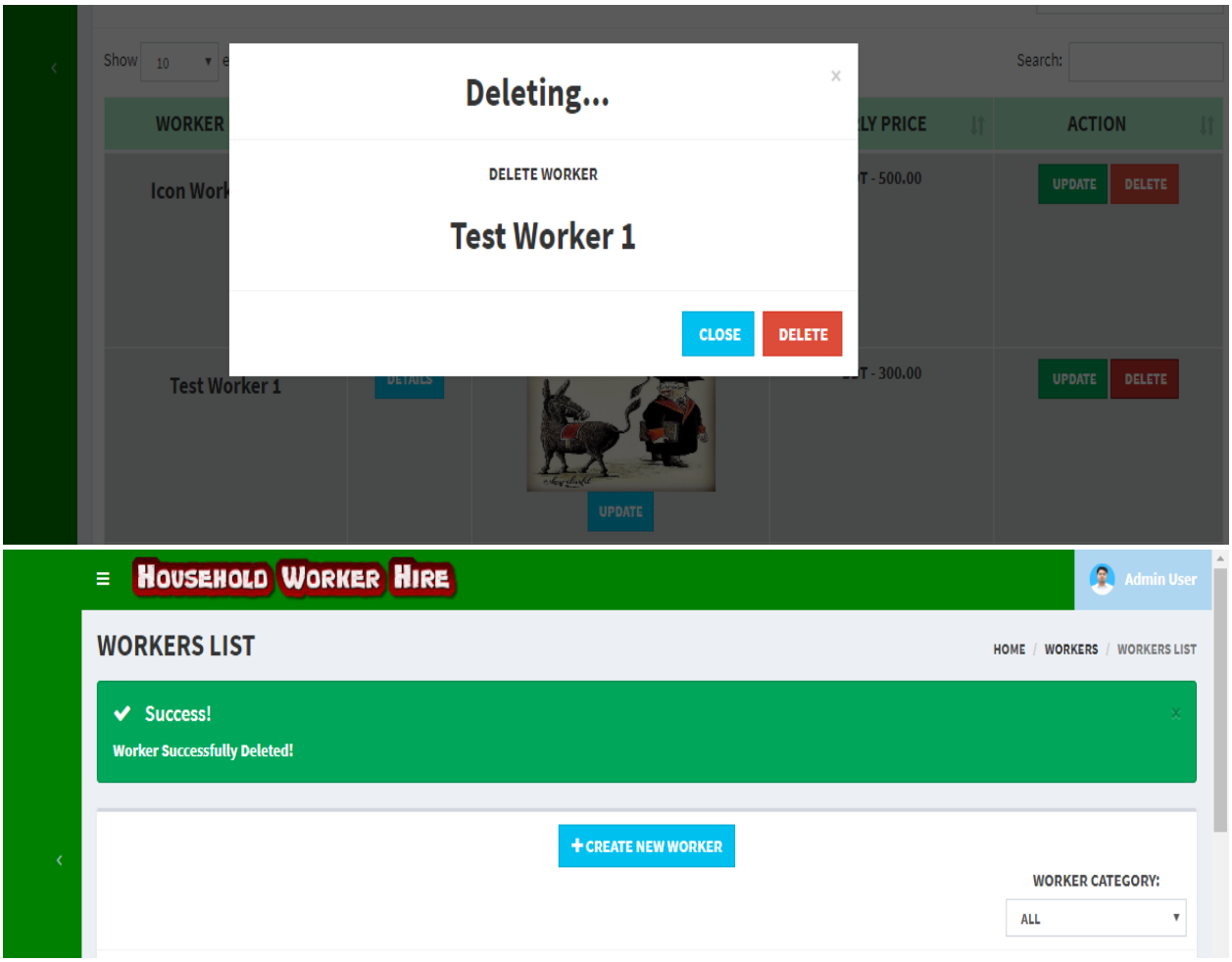
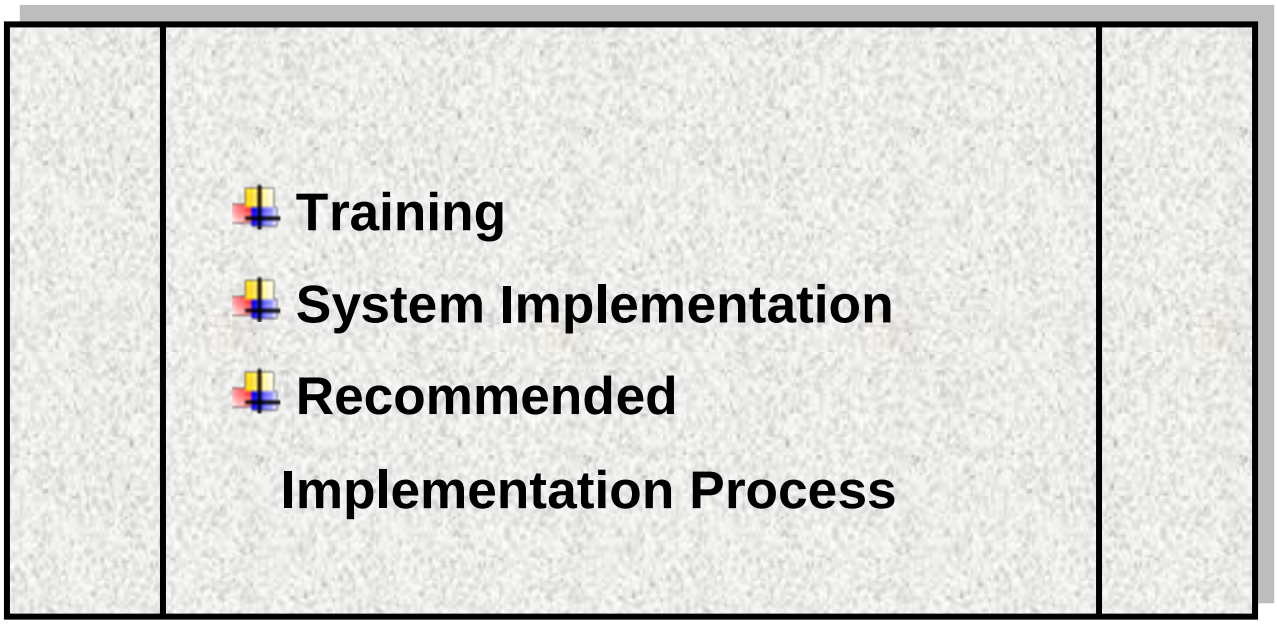


Figure 62: Worker's Data Deleted Successfully.

11.4 Summary of the Testing

Before launch any product or system it is essential to test its features and functionality. In this chapter I have discuss all things about testing the household worker hire management system. Identified the weaknesses and make compare with actual result and expected result. Finally, I have done all criteria's test and make this report.

Chapter – 12: Implementation



Actually implementation describes the process of the working flow of organization by users. User tries to increase the integrated work using structured approach. For implement any project it is very much needed to follow any apply the different schema of implementation. In this part I have describe the implementation process for this system and recommend a process in the last.

12.1 Training

All types' users are learning how to use the system in the training session. Training details for this system are:

Serial No.	Name of the User	Training Area	Time Limit	Details
01	Potential customer, registered customer	Find worker by category and send hire request for different schedule.	Near 1 Hour	Training session – user learn how to hire worker searching by its category.
		Show the hire list or cart of the system.	Near 40 Minutes	System's user can easily learn this process.
		Checkout from cart or confirm hiring.	Near 40 Minutes	Final action of the user process in the system. It also learns by user easily.
02	User/Admin	Category define and manipulation in this system.	Near 1 Hour	Admin learn the activity of the system.
		Worker's information manipulation and tracking info in this system.	Near 1 Hour	Admin learn the activity of the system.

12.2 System Implementation

Generally, there are four types of the implementation schema are followed in the world. These are –

Big Bang: Big bang is about running the new one by turning off the old system. There is a change to data loss of this system because it is much quicker process than others.

Direct Implementation: After final testing of the system – implement the new system as a replacement of the old one. Here old one are removing completely and implement the new that's called direct implementation.

Pilot: This process is running as test implementation. For big organization pilot supports install it in few branches, if all are okay then final installation will have done. This is the most common schema.

Parallel: Parallel is the process to running new one with the old system. Old systems are working the backup of the new system.

12.3 Recommended Implementation Process

I have discussed about four type's implementation process in this part. My recommendation is to install Pilot schema. For test it runs into few branches and then full installation are done. This can provide more confidentiality. So, I have selected it.

Chapter – 13: Evaluation

- Functionality
- Usability
- Security
- Portability

For any system – it is very much needs to determine its present market condition. In software field – evaluation ensures systems validity based on different characteristics. After making testing, evaluation is very much needed for any kinds of project. I have evaluate this system based on some criteria, these are:

13.1 Functionality

In this part of evaluation of the project – functionality checks the basic functionality of the business requirements. I have providing the main functionality's screenshot about household worker hire management system:

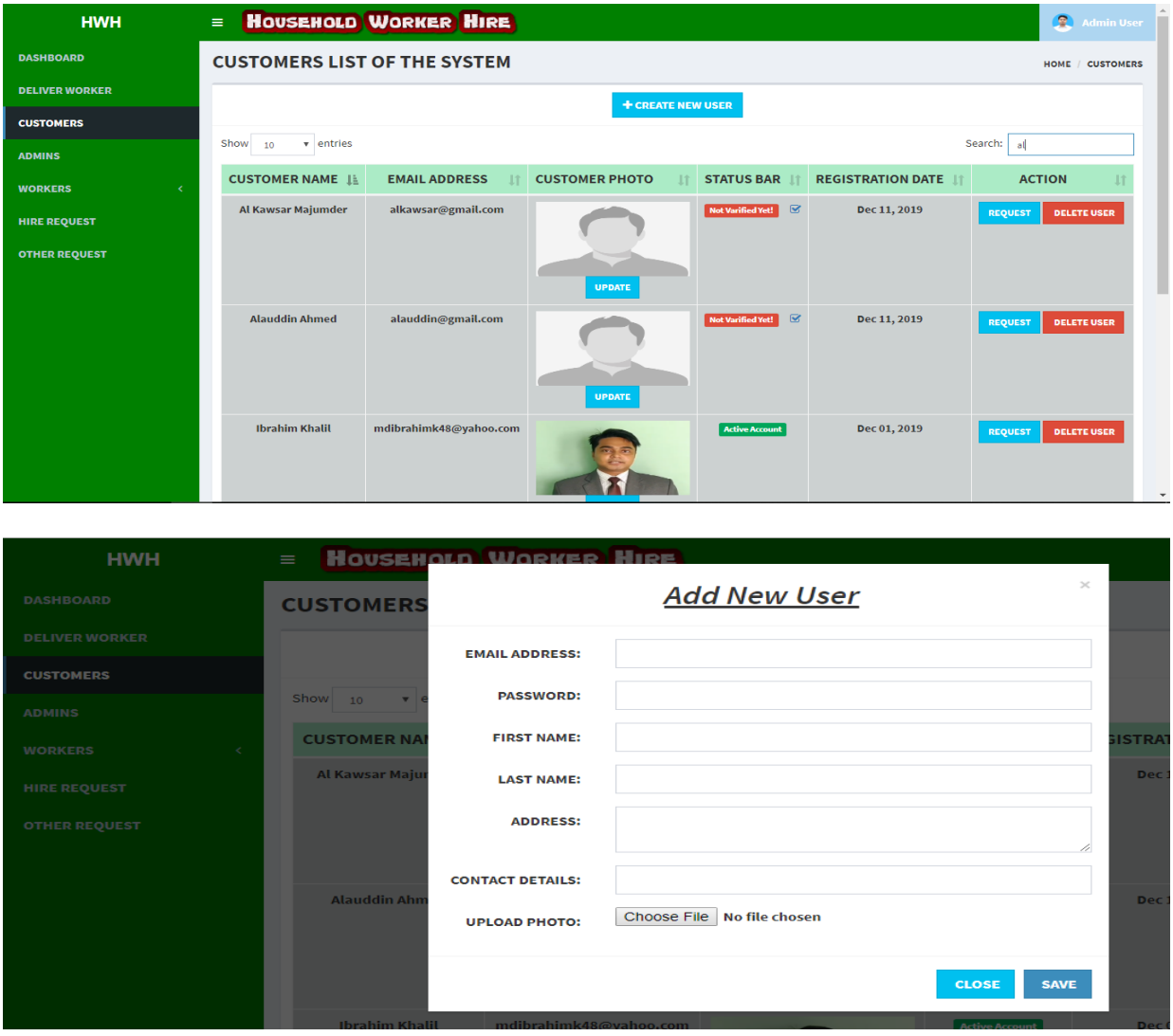


Figure 63: Customer Management Functionality.

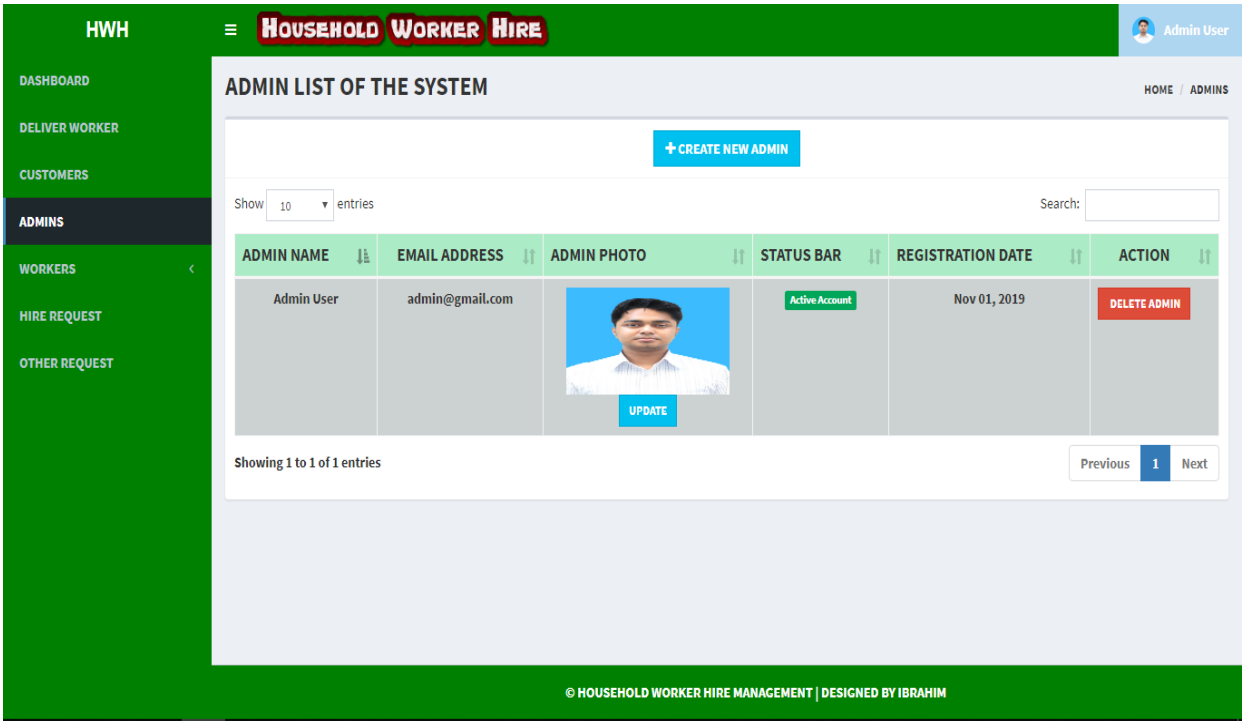


Figure 64: Admin Management Functionality.

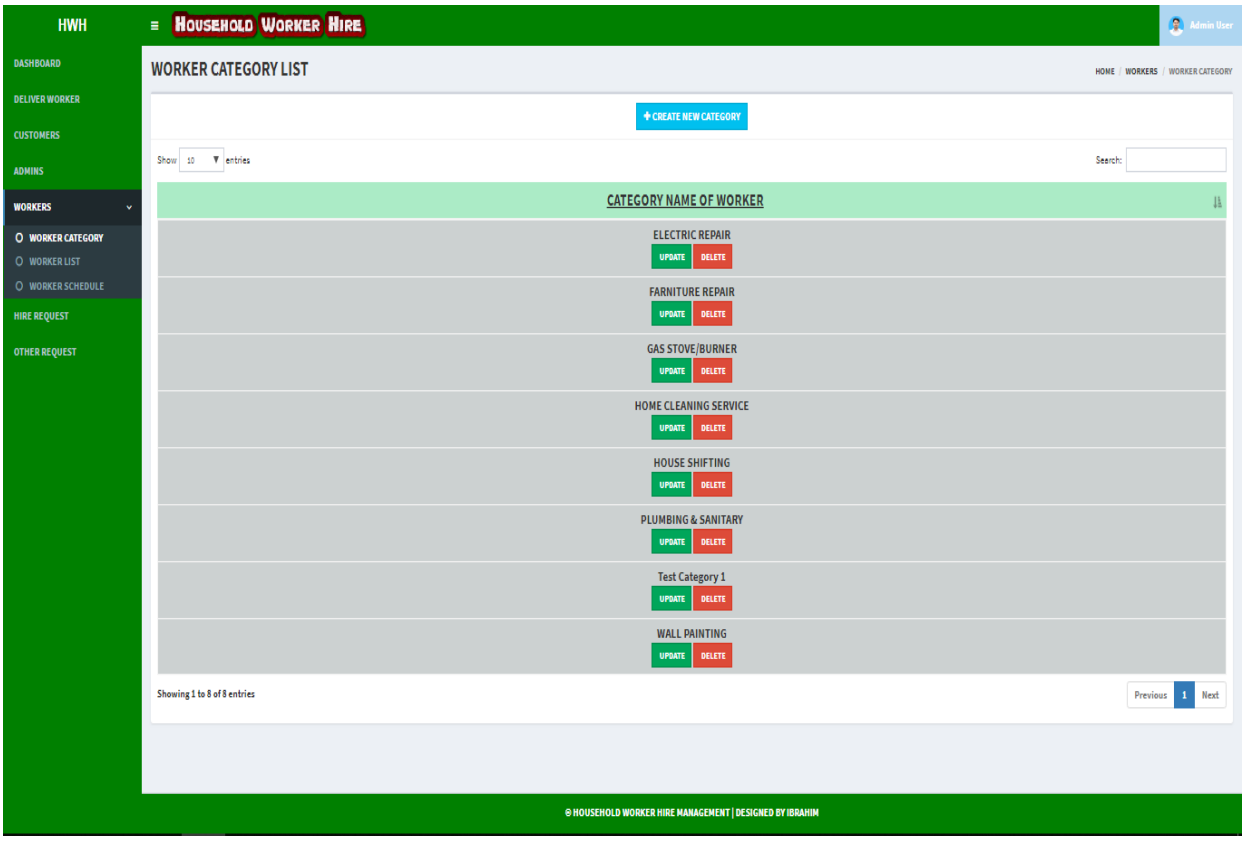


Figure 65: Worker Management Functionality.

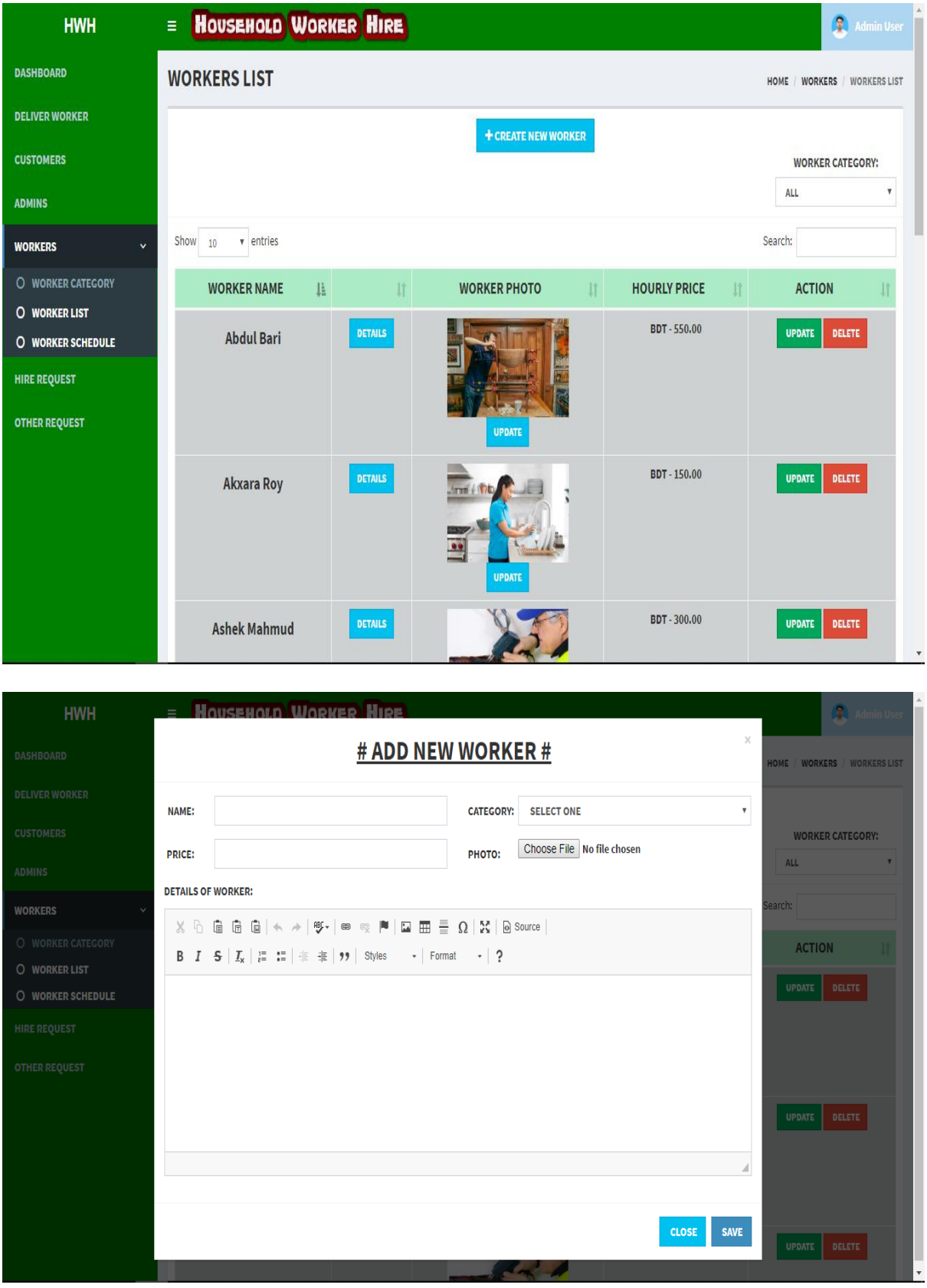


Figure 66: Worker Management Functionality.

Figure 67: Hire Request Functionality.

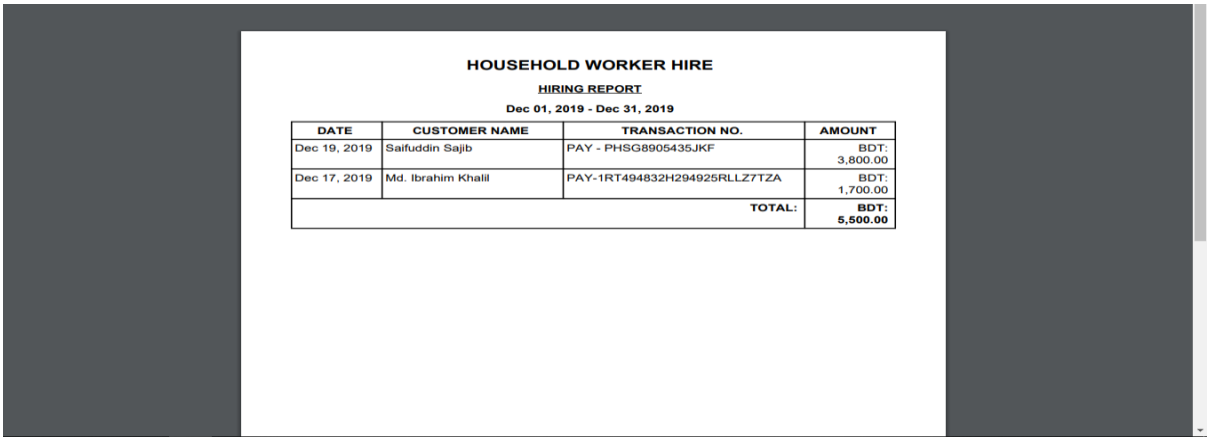


Figure 68: Hiring Report Creation.

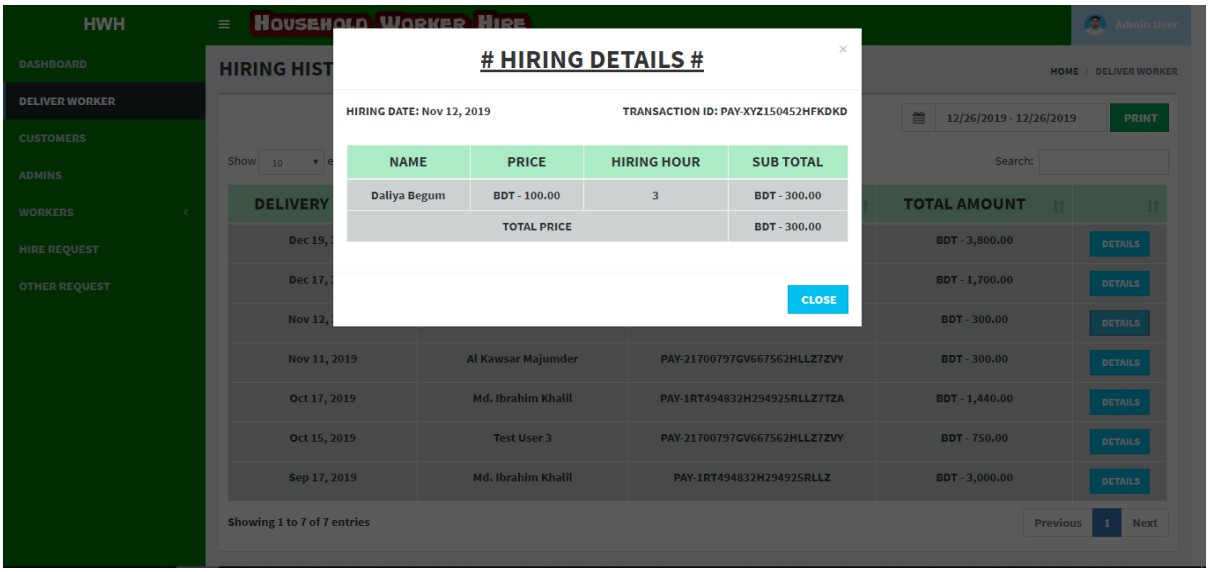


Figure 69: Hiring Details for Particular Transaction.

13.2 Usability

Users satisfaction and experiences are measures that how well the system is. System is look like user friendly and understandable by correct navigation bar, side bar etc. user can learn how to use system easily and they can learn to use by other user. System's screenshot are given below for understand the usability of the system:

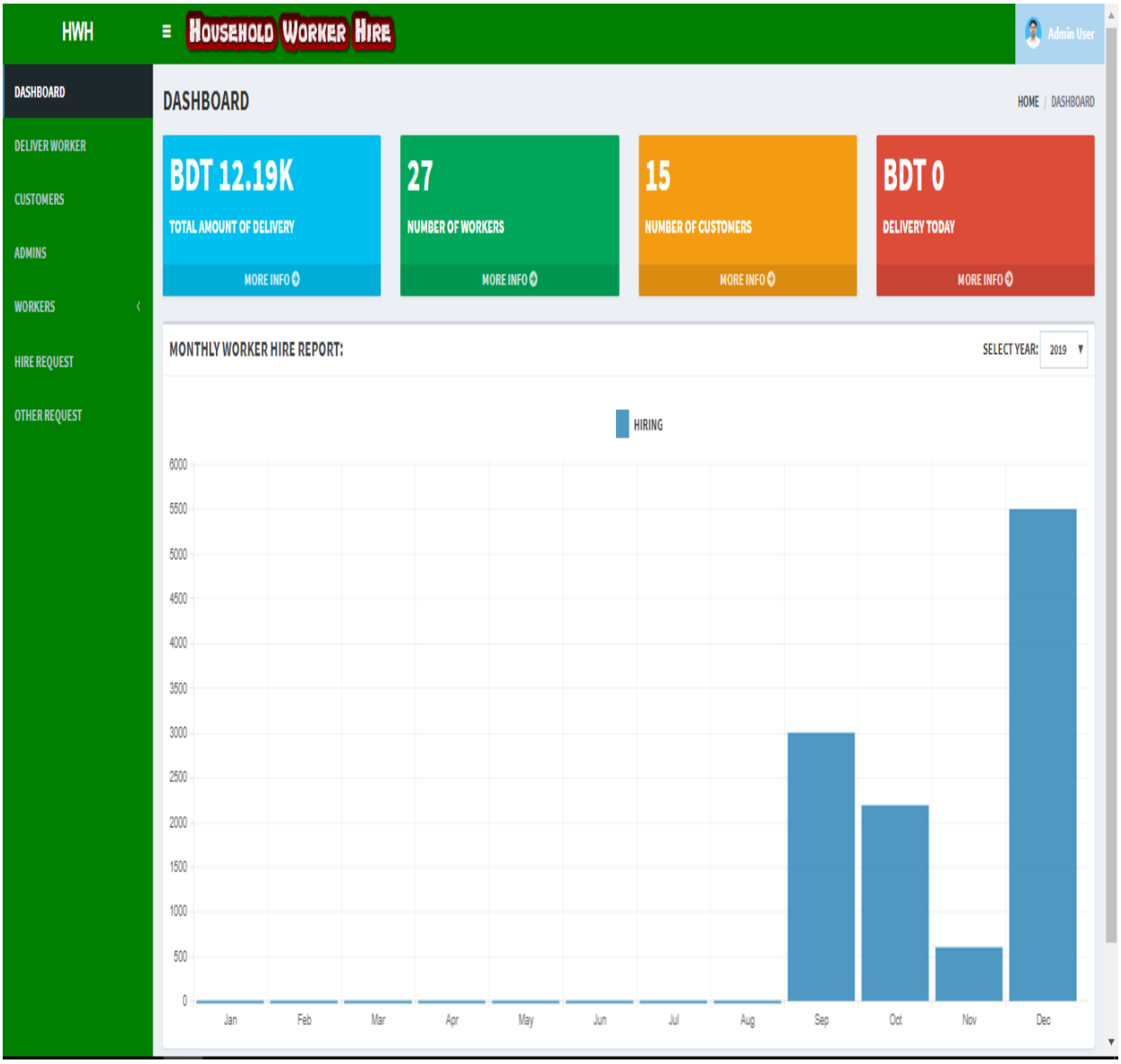


Figure 70: Usability Maintain in this System.

13.3 Security

This system handles lot of confidential data like – worker's information, customer's details and payment transactions. So, system needs to be highly secured. Here I have provided the screenshot of the security of this system:

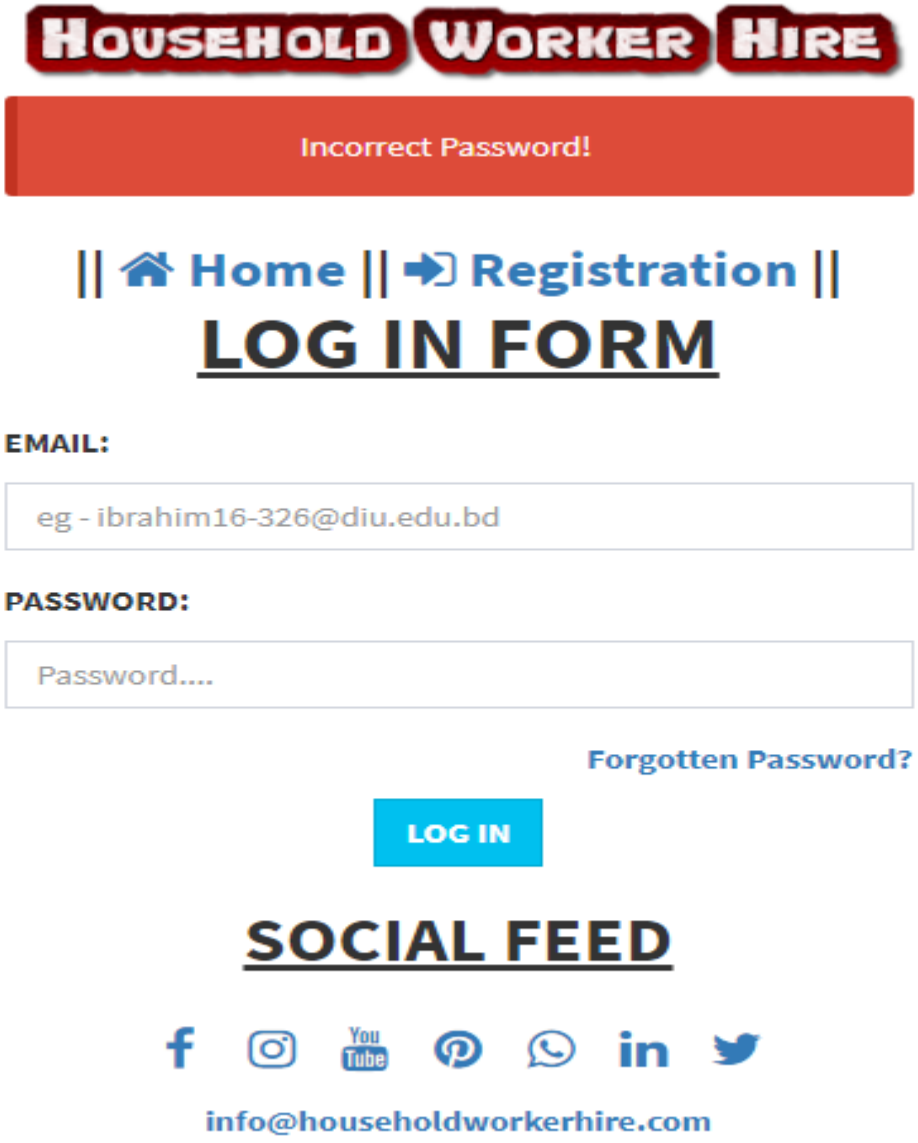


Figure 71: Security of the System for Authenticate.

Chapter – 14: Critical Appraisal

This lesson or chapter is discussion about the critical analysis of the project. Here I have elaborately described the project's success or failure objectives, which are met the requirements and which are not. Here I have done the evaluation the project's objectives and find the future possibilities and development area of the project, like – further development area. This part is discussion about this:

14.1 Objectives Met

Objectives met means –which objectives are completed successfully in this project development work. I have divided the objectives with three parts: **Academic Objectives, Business Objective, And Personal Objectives**.

Academic Objectives:

- 1. Using a Software Development Methodology – Implement the Project.
- 2. Making the project report by following tasks provided by academy.
- 3. Analyze the feasibility study of the project and risk factors.
- 4. Make database based on project requirements.
- 5. Making the test plan and write the test script on system's features or function.

Business Objectives:

- 1. Proper online worker hire management system.
- 2. Efficient schedule management platform for each worker.
- 3. Making a platform for different types of worker or category's worker needs.

Personal Objectives:

- 1. Make the system with met the requirements.
- 2. Create system with proper validation and verification and try to make error free.
- 3. Making clear and defined documentation.
- 4. Making different types of report by the system.

Now I will give the brief discussion about these part of the objectives met:

14.1.1 Academic Objectives

Objective 1: Using a Software Development Methodology – Implement the Project

I have used DSDM atern for developing this process. In the initial chapter of the project – methodology section I have discussed all about it related with the project. Here I have discussed some factors of that.

- **Success Factor:**

While I am gathering data about this project and analysis the requirements DSDM framework helps me to find the priority of the project and in the time boxes it defines the goals for each process within limited time. DSDM's iterative development forces the quality of the project by using little chunks. Test case are being successful by using iterative development of the project.

- **Problems Faces:**

DSDM's main problem is it never compromise with quality of the project so, it forces work back to back and it is very much difficult for me doing all things alone. Time management was very difficult with this framework.

- **Overcome Way:**

I have done the time box with better time management or duration. Business analyst may involve developer while making plan of using methodology for the project.

Objective 2: Making the project report by following tasks provided by academy

This is the academic project for final year graduation program. So, documentation is most needed part. And this report or documentation fulfills the project's goal, and quality.

- **Success Factor:**

For the business need I have made the clear and defined project documentation, here all requirements are analyzed and information is collected. Software architecture parts are defining and describe here. All types' diagrams and UML notations are defined here.

- **Problems Faces:**

The report is too much big. It is very difficult work to do all things alone for complete a project. Diagrams are difficult part of this project. I have face lot of problem during draw the diagrams using different software.

- **Overcome Way:**

Microsoft products default features helps to create documentation on the project. Microsoft Visio is the solution for create different types of UML diagram and Microsoft project professionals helps to create Gantt charts. For draw diagram I have also use Edraw max software.

Objective 3: Analyze the feasibility study of the project and risk factor

For measuring the projects feasibility of the society, it is mush needed that to do feasibility study on prospective area, like – economic, technical environment etc.

- **Success Factor:**

All feasibility factors are discussed properly and evaluate them in previous chapter and finally cost benefit analysis are done for this project. It shows that project will be successful.

- **Problems Faces:**

This analysis is the most difficult part of the project. Cost benefit analysis is created by doing many researches about the proposed system and the market. Doing analysis on the requirements features is one of the taught jobs.

- **Overcome Way:**

More research is needed to overcome from the problem. Market research need to perfect for doing study on feasibility and analysis the cost and benefit for a project.

Objective 4: Making database based on project requirements

Databases are required for storing and re-use for the business. I have used MySQL 2015 for this company's business. Here I have make proper relation with correct attributes.

- **Success Factor:**

All features are working properly with stored data and projects are performing well with the implemented database management system.

- **Problems Faces:**

Making relation with appropriate linkup is very difficult part. Database using in object oriented PHP is very difficult in any project. Accurate data types are needed for handling projects data.

- **Overcome Way:**

Properly data identification and its type are needed to be defined. Varchar is used for avoid trouble on the attribute data type. ERD are needed to be done with more identification.

Objective 5: Making the test plan and write the test script on system's features or function

Test plan is very important for reviewing the features and functionality. Here I have made different types of test plan like – unit testing, integrated testing etc.

- **Success Factor:**

All goals are achieved in this project and features or functionality are works properly in the system.

- **Problems Faces:**

There are many kinds of error occur during development time and some things do not match with the business requirements.

- **Overcome Way:**

After doing test – match the result with expected outcome. If don not match – then follow the DSDM's iterative development process and time boxes of the requirements.

14.1.2 Business Objectives

Objective – Proper online worker hire management system

Worker hire on the using web platform is the main goal of this project. Schedule management and proper view are needed for running the company's business properly.

- **Successful Factors:**

The main goals are deployed and testing are completed. Test script shows that all features are works properly.

- **Problem Faces:**

This is the main features or goal of this project. So, for implementing this I have faced so many problems, these are –

- ✓ Checkout of the request for hire.
- ✓ Schedule management of the worker.

- **Overcome Way:**

Proper SQL query is used for solve the checkout problem of the project. And proper data management is handling in the database for solving the worker's schedule problem.

Objective – Efficient schedule management platform for each worker

This project's one of the best goals is to manage schedule of the worker and show which worker are active now. Then hire the worker to follow the schedule.

- **Successful Factors:**

Successfully deployed schedule management process for the system and it works properly.

- **Problem Faces:**

Schedule update is the most difficult process for this process. If workers need more time to finish the work than admin need to update their schedule.

- **Overcome Way:**

Company admin can easily update their schedule; developer can deploy it with code.

14.1.3 Personal Objectives

Objective – Create system with proper validation and verification and try to make error free

I have created this system with proper validation and verification with each field. Each function will work properly during hire a worker by using this system. This objective made the system more appropriate.

- **Successful Factors:**

System's all features and functionality are developed with proper validation and tried to make error free. Testing is also given here comparing with the actual outcome with the expected outcome.

14.2 Objectives not met

This part is about the discussion which area are not deployed properly or failed to meet the project objectives. Here I have identified the reason for failure to implement the objectives and give the overcome plan of it.

Objective Name: System Log Implantation

System log is very much needed feature or objective for any project. If it is implemented in a project user can learn how to use the system easily and get proper guideline for user, the system efficiently and find the way to use the system. They learn to use the system by doing action in the system.

Explanation Why not met the Objective:

For implement this objective I have not done proper planning and also have limited time to do this project. That's why I am not able to meet these requirements in this system.

Overcome Idea for Met the Objective:

Making proper plan for each objective, like – using time boxes for each objective, this work would be completed. Time maintenance is the process for implement it properly and overcome from the situation properly.

14.3 Further Development

Though I have tried to implement all of the requirements of the project but some parts are not completed for the limited time and market research. As technology change the systems need to update it features for met the requirements of the project. For making efficient and reliable project further development plan need to be implemented or documented. Here I have make a plan and list out some things to make the project more reliable. Father developments of the project are given below as list:

- Set the category based on worker's gender, like: men or women, so that – customer can easily hire male or female worker for their house work.
- Deploy mobile application for hire worker more efficiently.
- Live chat system for different types of user in this system.
- More dynamic presentation about the hiring report.
- Offering discount and its calculation dynamically on the system for hiring multiple workers at a time.
- Open portal for assign workers by themselves and find household job nearby.

Chapter – 15: Lesson Learned

- What I Have Learned
- What Problem I Have Faced
- What Solutions Occurred

During development of this project I have faced lot of problems and try hard to overcome from it and finally reach the goal and find the solution. During this process I have learned lot of things about project management. Now I will describe about all of these –

15.1 What I have learned

Making a project is about gain lot of knowledge, face problem and overcome from it. Each task of the project management learned lot of things about software development and project development. During developing this project, I have learned lot of lesson, these are –

- Applying and using software development methodology in a project.
- Standing clear business process by research and on the proposed idea and know how to research about existing system and find the objectives to be developed.
- Learned about the implantation of software architecture and process modeling, different types of diagram to present the system to the stakeholders of the business.
- Data gathering technique by following different types of tools and techniques part by part.
- Different types of programming language, its implementation for real life problem.
- I have gain experience that – how can do research and make project measuring the current market value as well as the total things of making a project.

15.2 What Problem I have Faced

When I have started this project work I have faced lot of problems to doing development or research:

- Very tight budget for arranging all types of requirements and very limited time for developing and making research about this project, time boxes set fixed time schedule for each task or process.
- Iterative development process always forces to recheck the work again and again for those lots of time are lost for doing any tasks completely.
- All requirements are gathering by me – it was very difficult work for me. Proper market research is one of the difficult parts for this project because this is totally new type of project for our country and culture.
- Code error is one of the most painful experiences for me. I have spent lot of night to find the solution of the code error. Sometimes an error was the main reason for other problems.

15.3 What Solutions Occurred

I have also found some solution for overcome from the problems which are identified:

- Following the MoSCoW prioritization list to find out the solution about time consuming matter.
- Different types of methodology are used here for data gather and market research about this project.
- Frameworks are used for proper guidelines, following time boxes to overcome the development problem of this project.

Chapter – 16: Conclusion

- Summary of the Project
- Goals of the Project
- Success of the Project
- Documentation Description
- Value of the Project
- My Experience

This is the final chapter of this report. Here I have described the overview of my total work, like – summary, the main goal, my experience, project value and so on.

16.1 Summary of the Project

By following the task, I have implemented all the requirements of the project and its works properly. Within four months I have implemented this project. I have done lot of field work for doing this project and collect data from them core level of the worker in Bangladesh. System background and analysis are done by matching with the objectives.

System engineering parts are done in this document clearly. All types of software architecture design, diagrams, using different methodology, literature analysis and comparisons between existing system and this system are done here. The project values are measured here using different types of evaluation techniques. I can say all types of project things are done with this documentation and I have implement this system by following these analyses and try to make the system for real world problem. This system is the total solution of hiring worker for home by website.

16.2 Goals of the Project

I have made this system for creating a new solution on hiring the worker and manage their data in computerized system. For fulfill the need I have identified some goals for this project. These are –

- Hire different category's worker for home work with correct price effortlessly.

- Handle worker's data efficiently and set validation on their schedule, working time etc.
- Create communication and feedback facility from users.
- Making a new market place in online for Dhaka city.
- Time consuming and sustainable management area development which are easy to handle.
- Report generation based on different categories which are very much needed for run this type of business.

16.3 Success of the Project

For doing this project – initially I have made a project proposal and define the goals and aims of the project. In the conclusion, I want to say that – I have done all these works and fulfill the project goals. All objectives are met with the requirements and now customers can hire any category's worker by following their schedule and company can run their business efficiently. All objectives are fulfilling and project goal are achieved so, project is successful.

16.4 Documentation Description

In this documentation I have done all the contents successfully. All the requirements and functions have met with the project proposal and briefly describe all part by part. The necessary diagram, evaluation, chart, methodology and plan are given here. All the project related data are given here and describe it clearly. This documentation is one of the important parts of this project.

16.5 Value of the Project

Day by day people of the world will very much depended on computerization and technology. Today people do all works by their devices like – PC, mobile etc. People want to do work from their home. They do not like manual system today. In this digital world people do many kinds of work on online. This system creates a new working sector for many peoples. Company can run their business by dealing with home worker and people can easily hire them from online. In online market it creates new value for general people of Dhaka city. This kind of project creates a new area in this country.

16.6 My Experience

During doing my project for final submission I have done lot of field work for collect data. Gather many types' data and requirements from different types of users and workers. Developing a new system with new idea was very big opportunity and experience for me. I have met all requirements from proposed system. I have done this project with limited time scale and done this work with responsibility. During the development time of the project – I have learned how to solve all the problems and how to find solution for this kind of computing project. I hope this project knowledge will be very helpful for my future computing career on project.

Appendices:

Appendix – 1

I have described the requirement catalogue description in previous chapter of this report. The remaining parts are described here:

Name of the Requirement: Add Schedule			
Source: Company Admin	**Sign off:** Customers	**Priority:** Must Have	**Catalogue ID:** HWH-06
Functional Requirements	Company admin should capable of set the schedule of different types of worker based on customer demand.		
Non-Functional Requirements	Proper validation and verification is needed for schedule time check and location check of the workers.		
Details	**Target Range**	**Acceptable Range**	**Overview**
Worker's schedule set.	100 per day	100-200 per day	Using category and worker set the schedule of worker.

Name of the Requirement: Request for other workers category			
Source: Customers	**Sign off:** Company Admin	**Priority:** Could Have	**Catalogue ID:** HWH-07
Functional Requirements	Registered customer could capable for sending the request for other typed or categories worker for their need.		

Non-Functional Requirements	Proper validation and verification is needed for schedule for sending the request.		
Details	**Target Range**	**Acceptable Range**	**Overview**
Request sends for other categories worker.	50 per day	50 per day	Using request submit form send the request.

Name of the Requirement: Comments			
Source: Customers	**Sign off:** Company Admin	**Priority:** Would Have	**Catalogue ID:** HWH-08
Functional Requirements	Registered customer and would post the comments to the system about company and admin.		
Non-Functional Requirements	Would post the comment successfully with validation of fields.		
Details	**Target Range**	**Acceptable Range**	**Overview**
Comment post for feedback.	1000 per day	1000-1200 per day	Using comment box for posting feedback.

Name of the Requirement: Transactions

Source: Company Admin	**Sign off:** Customers	**Priority:** Should Have	**Catalogue ID:** HWH-09
Functional Requirements	Registered customer should pay the transaction for hiring different types of worker.		
Non-Functional Requirements	Should pay the price successfully with validation of fields.		
Details	**Target Range**	**Acceptable Range**	**Overview**
Payment pay and transaction details.	100 per day	100-200 per day	Using transaction no make the payment.

Name of the Requirement: Remember user's devices			
Source: Company Admin	**Sign off:** Company Admin	**Priority:** Won't Have	**Catalogue ID:** HWH-10
Functional Requirements	Registered customer's devices need to remember for future use.		
Details	**Target Range**	**Acceptable Range**	**Overview**
User's devices remember.			Won't need requirements.

Appendix – 2

I have described the use case description in previous chapter of this report. The remaining parts are described here:

13. Send Hire Request
Brief Description: Registered customer send worker hire request to the system.
Actors of this Use Case: Registered customers
Pre-conditions: Must need to be registered in this system. Database stores all workers hiring information
Basic Flow of the Events: ➢ Fill the form to get worker and send the request. ➢ Specific date and quantity need to be measured.
Extensions of this: • If schedule and information are not valid then system shows error and cannot send request.
Post-Conditions: Successfully send request. Requests are stored in cart for checkout.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

14. Delivery the Request
Brief Description: Company admin confirm the delivery of the requested worker.
Actors of this Use Case: Company admin.
Pre-conditions: Must need to be log into the system and customer send request for worker.

Basic Flow of the Events: ➢ Check the validity of the request and delivery the requested worker.
Post-Conditions: Successfully delivery the worker to the customer.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

15. Payment Details
Brief Description: Company admin can check payment details of the requested hire before delivery the worker to the customers.
Actors of this Use Case: Company admin.
Pre-conditions: Must need to be make payment by customers for hiring specific category's worker.
Basic Flow of the Events: ➢ Check the payment details using transaction number of the payment then leave the system.
Post-Conditions: Successfully check the payment details of hiring.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

16. Feedback
Brief Description: Potential customers, admin and registered customers can leave a comment about worker's category and system.
Actors of this Use Case: Potential customers and registered customers.
Pre-conditions: Must need to be entering the system.
Basic Flow of the Events: ➢ Fill comment box and give feedback.
Post-Conditions: Successfully post the comment and admin can reply the comment.
Special Requirements: Internet connectivity is needed to run this operation with computer devices.

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