

AN EDUCATIONAL APP FOR KIDS

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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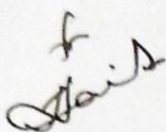
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APPROVAL

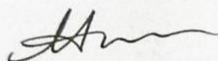
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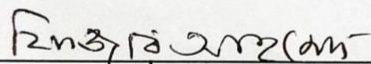
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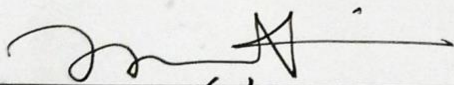
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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Nusrat Jahan, Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

Smartphone has become a great tool for teaching kids. As kids nowadays spend a lot of time on a smartphone. Preschool education is considered pivotal for a child's development. The problem that we are seeing so much nowadays is that kids talk or respond a little late in the right time. That's why we want them to be in a regular learning process with one of our application. Mobile learning is a new way to access learning content. Mobile learning is very popular among preschool kids. Because it really motivates kids to learn if they can use mobile phones or tablets. That's why we have developed a marker-based AR application, which will help children to learn or study the basics of Alphabets with fun. While using our application, kids will learn interactively with the help of Augmented Reality. Our app will help the parents teach their kids without much effort.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In this modern era of smartphone and tablet, children playing with tablet or smartphone is no wonder. This becomes very normal to the society. Even sometimes children can have their own smartphone and tablet which makes them spend most of their time with these devices. This encourage us to make something that can benefit children's education with the help of this devices. So, this motivates us to make a learning and fun application that can help the children learn the basic of Alphabets in their time while using these devices. Most of the time they will waste their time by doing unnecessary things but if they play with this application, they can have both fun and education. The children will have fun using this application as it shows 3D model along with sound of many pictures. Children that are started learning alphabet, can learn more interactively and with fun and fast speed than learning in a normal conventional way. A preschool child can be the most benefited for using this application.

1.2 Motivation

Nearly a 3rd of individuals on the syndrome spectrum use no oral communication or solely many words. All these individuals could be described as having nonverbal autism. Yet the term "nonverbal autism" has no official standing, and there is no such diagnosis as "nonverbal autism." In part, that's because there is no clear line between verbal and nonverbal individuals with autism. For example, some people with nonverbal autism do develop the ability to use a few words in a meaningful manner but are unable to carry on any kind of significant conversation. Some "nonverbal" people can speak but lack the ability to use language in a meaningful way. These people might "echo" scripts from TV or expressions they have been schooled by therapists. Instead of victimization these scripts to speak ideas or needs, however, they seem to use "scripting" as a form of self-calming stimulation. Quite a few nonverbal people cannot use oral communication effectively however are able to communicate with written or written language, American Sign Language, picture cards, or digital communication devices. Once a personal is effectively human action, even without spoken language, their ability to engage in the world expands

dramatically. One of the strangest aspects of nonverbal syndrome is that the incontrovertible fact that nobody very is aware of why some folks with syndrome cannot, or don't, use spoken language. It is particularly puzzling as a result of quite few nonverbal folks on the spectrum will and do value more highly to communicate victimization yank signing, picture cards, and a range of digital tools.

True, some folks with syndrome even have childhood brain disease of speech, an upset that produces oral communication very troublesome. But most nonverbal people on the syndrome spectrum do not have apraxia; they merely do not speak. Clearly, there are variations in brain operate that inhibit oral communication, however at this time, there's no agreement on simply what those variations are or however they impact any given individual.

An app can be developed for autistic child's which can make them enthusiastic to talk. And after a lot of research we found that.

1.3 Objectives

Verbal Behavior (VB) therapy teaches communication and language. It is based on the principles of Applied Behavior Analysis. This approach encourages folks with syndrome to find out language by connecting words with their functions. The student learns that words will facilitate them get desired objects or results. Verbal psychotherapy doesn't specialize in words as labels solely (cat, car, etc.). Rather, it teaches why we use words and how they are useful in making requests and communicating ideas. Verbal Behavior therapy begins by teaching demands (requests) as the most basic type of language. For example, the individual with autism learns that saying "cookie" can produce a cookie.

As soon as the student makes a request, the therapist repeats the word and presents the requested item. The expert then uses the word once more within the same context to strengthen that means.

The person doesn't have to say the particular word to receive the specified item. At first, he or she merely must create letter of invitation by any suggests that (such as pointing). The person learns that communicating produces positive results.

The therapist then helps the student shape communication over time toward saying or signing the actual word.

In a typical session, the teacher asks a series of questions that combine easy and hard requests. This allows the student to be successful more often and reduces frustration. The teacher ought to vary the things and directions in ways in which keep the scholar interested.

Verbal psychotherapy uses a way known as “errorless learning.”

Errorless teaching suggests that victimization immediate and frequent prompts to make sure the scholar provides the right response whenever. Over time, these prompts are reduced. Eventually the scholar now not desires prompting to supply the right response.

So, it concludes by the given feature that our app is going to produce such environment so that it provides visual therapy which can make the challenged children enthusiastic.

1.4 Expected Outcome

In this modern era, most of the people spend lot of time using mobile. Kids are also using mobile most of the daily time. We keep in mind this thing when we choose our project. Another thing is that there are few works in Bangladesh about this topic. That’s why we choose this project topics. Our main aim is to make the programming/engineering concept we earn and spread it for a better implement. There is some work done before and has some similarity with our project, but our project is more updated than their project. Most of our project feature are different from their feature and which is very helpful for children and their parents. Another good thing of our project is it is cost efficient.

1.5 Report Layout

In this project a full summary of our system and connected work and terminologies area unit given step by step. We recently created a survey on this similar work and take a look at to what's a lot of scope to develop this existing project. In chapter two we describe the challenges and facing downside that is build tough to us. Another chapter three we describe the 3 stage of background. We conjointly describe the necessity specification and take a look at to disclose users demand. In, chapter four and five we disclose however we solve the matter and what we use to implement the project. Finally, in chapter six we remark some closing and suggestions for future works.

CHAPTER 2

BACKGROUND

2.1 Introduction

In this era of modern innovation, there are a lot of mobile apps, which are focusing on teaching preschool kids. But very few of these apps are fun and engaging for a preschooler kid. Not many of these apps are interactive. That's why kids are not very interested in using these apps for education purposes. So, we tried to solve this problem with the help of build a learning application. There are some apps that are using for educational purposes. But most of them are for high scholars or college students. This chapter emphasizes on the existing solutions that are concentrating on the education of a preschool kid with the help of mobile apps and how these educational apps can become more effective in making the app more suitable for the preschool age kids.

2.2 Related Works

Relative works basically indicate what kind of work this topic relates to. Here we searched that are we motivated by this tasks, whether there is any information to provide, which will be helpful in our project development. We found some of these relatable work at the international and regional levels from we received information and compared our project with others.

- **Educational App for Children with Autism Spectrum Disorders**

Kids with Autism Spectrum Disorders (ASDs) are normally analyze by the unsettling influences in the accompanying areas; social relatedness, correspondence/play, and limited interests and exercises. Therefore, cooperating and speaking with youngsters with ASDs are many-sided due to their absence of verbal and nonverbal relational abilities. Understanding the requirements of the kids are likewise a testing task as a result of their trouble in communicating their requirements verbally.

They mainly focus on Correspondence/play incorporates either a postponement or complete absence of spoken language and absence of formatively fitting pretend or social play and Restricted interests and exercises incorporates enveloping distractions, adherence

to non-practical schedules or ceremonies, generalizations and engine idiosyncrasies. The application is separated into two primary use cases, considering two sorts of clients, for children with ASDs and for their guardians. The parent's panel use as to click some pictures and write some command line. The children click that picture and listen the command. There also an identifying child button which will identify a child by clicking the pictures.

The Educational App is made to assist kids with ASDs to improve their relational abilities with other. Children with ASDs can pursue the way toward learning by tuning in to the sound in the wake of associating with the image of the article. It can likewise assist their folks with understanding the necessities of their youngsters since it can maintain a strategic distance from any undesirable miscommunication.

They will use this app online for learn some of things like how they communicate with parents with some help of the picture they will show in their application. They cannot use any educational things which will help them to communicate with their parents.

- **Fill Me App: An Interactive Mobile Game Application for Children with Autism**

Fill Me App is an intelligent portable amusement application which is a valuable learning material expected for kids with Autism that causes them to propel in their learning process. This diversion application is center for the most part around Science essentially on distinguishing the human's body parts. Collecting the best time for center observing, eye-catching illustrations, straightforward dimension of activities, video instructional exercise what's more, ambient melodies that match with the current instructive lessons are among the essential highlights that this application brings to the table.

Two clients can use the application. The instructor can sign in, view, screen and assess the understudy's execution dependent on how the understudy reacts to the diversion. The educator will login to screen and assess the understudies' exhibitions. The instructor will see this assessment through the web application. The instructor is fit for observing and assessing his understudy's execution. The educator can screen and assess one's execution by appearing of the amusement through a chart for each dimension of activities. Every one of the information from the understudy's preliminaries of the amusement per level up to the most recent will be put away on the database by means of online through web application.

The Fill Me App which is an advantageous instrument towards children with Autism has more range of consideration as opposed to the books or visual guides, they concentrate more on the amusement and were spurred as opposed to the customary techniques. Be that as it may, the analysts additionally finished up regardless of the effectivity of Fill Me App towards kids with Autism, the age likewise matters. The fundamental objective of this is to help and help the Autistic youngsters that would improve their comprehension and capacities by building up a learning diversion application explicitly in the Science subject regarding with the Human's body parts.

This app use only for which autism children will like to play game. They cannot use any satisfying video for relaying then. They use some game which will have some eye-catching graphics. After playing game, some analyzing result will show in trainer account. But they can use any educational things which will help in future. They also do not have ant parent's account, where parents can show the analyzing result.

- **What We Can't Understand: The Non-Verbal Communication Among Autistic Children**

Autism affects 1 in 68 children in the United States. This rate has jumped 30 percent since 2014 and remains one of the fastest-growing developmental disorders in the nation today (Autism Speaks). Parents of autistic children are often told by medical professionals that if their child of communication the odds are not completely against them.

They developed a mobile application which help special child by voice command, child learn and practice different emotional image for expressing their emotion to develop their verbal communication. They try to use many methods that families of the non-verbal child can help them to communicate. Many games, positive sound added so that child express their feelings in positive way by voice their speech and emotion.

This App has well organized features so that child with autism can work their weakness and they worked on mainly nonverbal communication added many methods to make their app more interesting using alpha grid method.

It is true that child can communicate with families by the features they developed in their application. But we cannot see any educational things which will help them to communicate with their parents.

In our project we will provide visual therapy by VR box where child may get some mental satisfaction as well as we will develop some of educational part and some of parents and trainer communication part which will helpful for both parents and children. In our project we develop a part which is identify a word from a picture, Language and visual skill which will help the student to learn some language. We also use online trainer which also help for autism trainer and parents for training something.

- **Autism children's app using PECS**

They add some good features. Such as Register, Login page, Main menu, Pecs Sentence Structure Book, Questions and answers, Single work learning. Single work learning divided into 6 subcategories Such as Animals, colors, shapes, Emotion etc.

This app is very helpful for the autism children because of some good features. One of the features was single work learning. This part helps the autism children to know about animals, colors, emotion etc. I think the most useful part of this project is PECS sentence structure book. It's help the autism child in communication and sentence building such as I want food.

I think in this project the developers miss some features such as Math calculation, online trainer, talking partner.

- **Design and Evaluation of a Mobile Learning application for Autistic Children in a Developing Country**

This research is based on the literature review and a user research performed with the parents of children with ASD at a school in Lahore, Pakistan. He tried to address two different problems faced by the children diagnosed with Autism, 1) Communication Problems, 2) Social and Emotional Problems. They present a web-based feedback system for parents in order to keep track of weekly improvement trends of each child after using their applications.

Their mobile learning applications for autistic children based on 5 main structures. Those were 1) Collaborative Learning, 2) Coloring Activity, 3) Learning Emotions, 4) Social Learning, 5) “Guess who?” game. They enabled children to draw several drawings and express themselves accordingly on the chart paper with pencil as well as on android tablet device with the help of touch pen. They intended to perform a comparative study with an equivalent paper-based system of their app. They collected information about the feedback of this activity from teachers after every week. Based on it they wanted to measure the level of satisfaction of the parents and level of improvement in the children through the feedback from the teachers.

I think their work keeps impact on Collaborative Learning. Collaborative Learning is an environment in which a group of more than two individual collaborate to perform a task. In our daily life, every individual must go through such a situation. Children with autism find it hard to interact with their peers because of lesser social and communication abilities. By using their mobile learning application children feel comfortable with the use of pencil. However, this activity enabled the autistic children to express themselves on paper through their art. Collaborative learning will enhance their art skills. They will learn about the story. They will also learn how to make the drawing according to a story.

Their main work based on Collaborating Learning. But Children with autism find it hard to interact with their peers because of lesser social and communication abilities. Without the help of adults, it will difficult for interacting with ASD children.

- **An interactive app for learning numeracy and calculation for children with autism**

What they did: They create a very good project. They have some good features that are beneficial for autism children. Some of the better features are levels of learning numbers, recognize number, match number, augmented reality, learn calculation.

These applications are important due to their characteristics. One of the best features they use is the augmented reality. This feature makes this application more realistic and makes it more interactive. Other features are helpful for learning.

They did a very amazing project, but I think one of the features missed in this project is Teacher guideline such as a teacher who can always monitor the autism child. They can also add the VR box for realistic video.

2.3 Comparative Studies

What we realized from our place of thought was that this application creates an environment whereby trainers, parents and children's can learn and teach from a platform. Because of the easiest way of learning process of this application, the child will be able to learn on their own without a trainer or parent. We will believe that this learning platform will create a positive communication of teaching development.

2.4 Scope of the Problem

In our project we will develop some of educational part and some of parents and trainer communication part which will helpful for both parents and children. In our project we develop a part which is identify a word from a picture, Language and visual skill which will help the student to learn some language. We also use online trainer which also help for autism trainer and parents for training something.

2.5 Challenges

In this chapter we focused on the related works that had been done. Although there are some educational apps, but not many of them are targeting the same demographic as we are targeting. So basically, there are not many educational apps for preschool age kids. That's why we are making an educational app for preschool age kids.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

Business model is a system that incorporates the process features of a system into a very good model. When creating the application we only see it as a learning process assistant for education purpose. But we have a model built for business model platform and that is given below

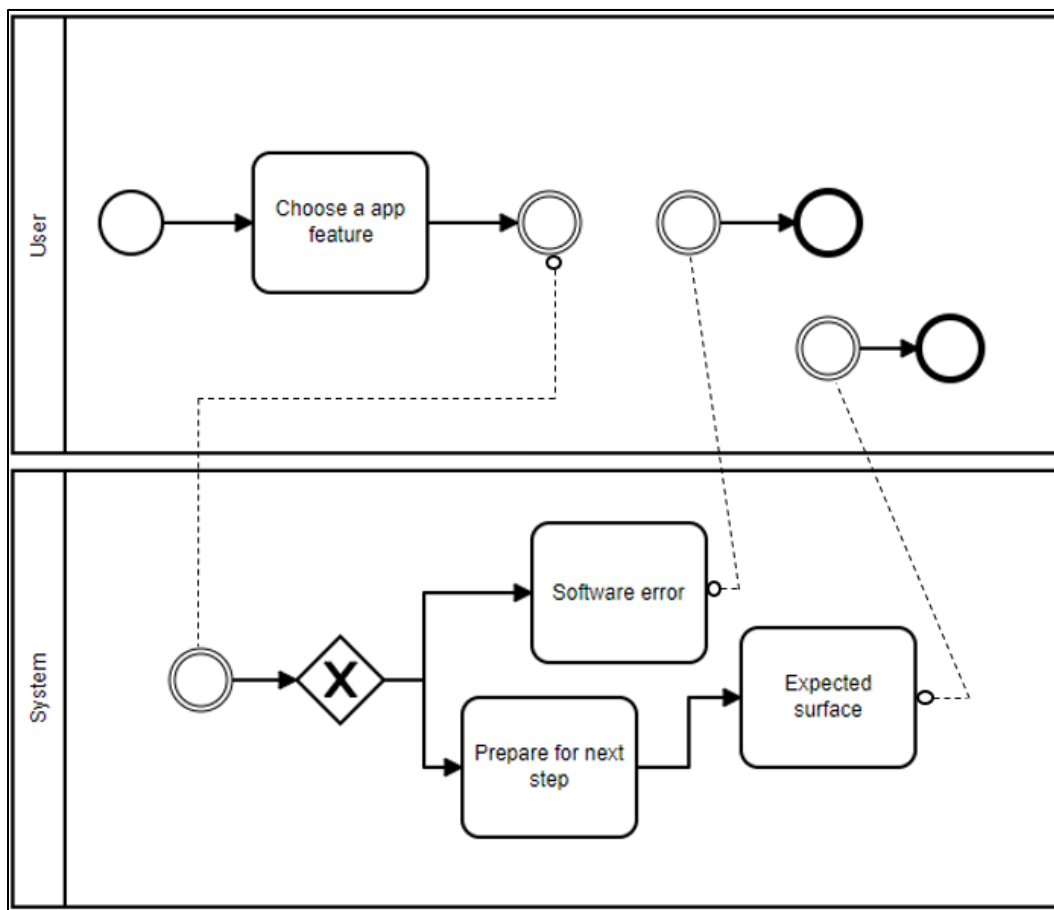


Figure 3.1.1: Business model

3.2 Requirement Collection and Analysis

Requirements of resource collection plays a key role in completing a project beautifully. We need to integrate a development project environment, multiple field surveys, research

papers followed for getting the ideas about the meaningful implementation about this project. We also added conversation with kids and their parents and did more words to feel our project needs.

In our readings and from some news sources and others we have found out that most of the autistic symptoms are being denied and kept unrevealed by the parents. Three types of autism are mostly available all around the world. In our project our initial goal is to do something with verbal autistic children. This is the type mostly found in our country. Children who doesn't talk sufficiently or already over aged to talk normally are in this category. Identifying the types, the study will work based on how it can be possible to make them act normal, make them talk or make them enthusiastic to talk. Based on their built-in ability different, the typical complicated problem possessed children can be observed. This might help different level, diversity in the system to be controlled or selected by the provider who acts as guide to that child.

By observing the results of our survey questions, we can hope that working over autism people which predict that if any people have any autism syndrome in their face or body. In order to make the prediction to better the researchers conducted a survey over the autism center. The main purpose of the survey was to discover their opinion about autism people. We conducted interviews over the online and going to especially from people who are affects this autism. Survey usually lasted around 7 day over the online and consisted of 9 structured questions related to them experiences of autism people. Both males and females were included in the survey. The focus of the questions was on the impacts of autism application, the precursors of the events, their suggestions on how to improve prediction on such events and preventions method through an application. In the first section below, we show the demography of gender, ages and some other questions result. After that we talk about our application and what are the features, we will implement in future.

- **Demography**

Table 3.2.1: Gender

Gender	Participants
Male	36
Female	10

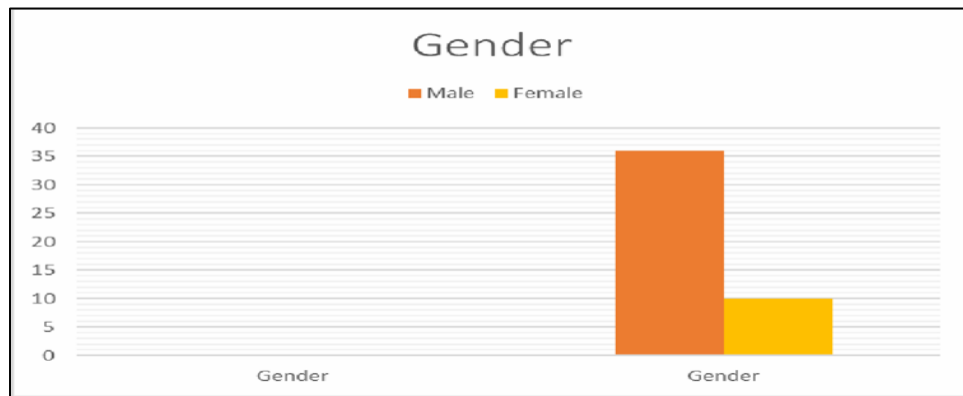


Figure 3.2.1: Gender

Table 3.2.2: Ages

Ages	Participants
13 - 20	0
21 - 28	41
29 - 36	3
37 - 44	2
45 - 52	0

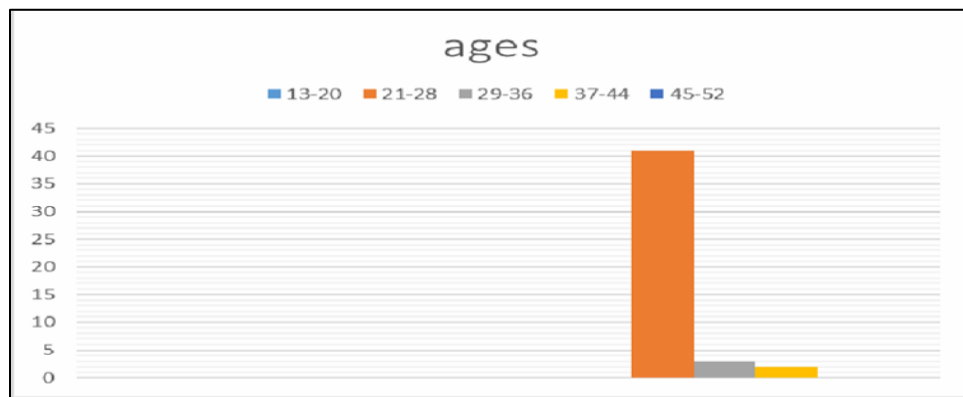


Figure 3.2.2: Ages

- Survey

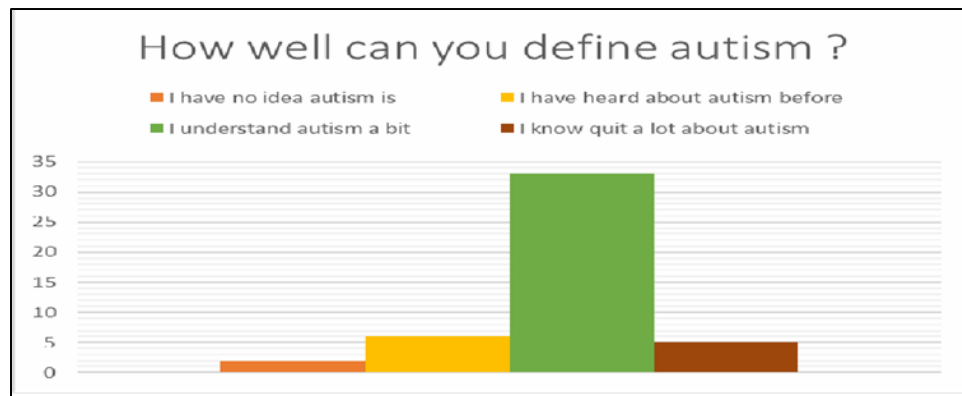


Figure 3.2.3: Define autism

In this part we asked a question how well you can define autism, majority of the participants vote for I understand autism a bit, 33 people vote this option. After that I have heard about autism before 5 people vote this option. So, we can say that many people understand what autism is.



Figure 3.2.4: Prefer to learn about autism by application

In this part, we asked a question How would you prefer to learn about autism by application, participants vote majority for online video option, 20 people vote for this option. Some people also vote for research on my own. So, we can say that people like online video option most.

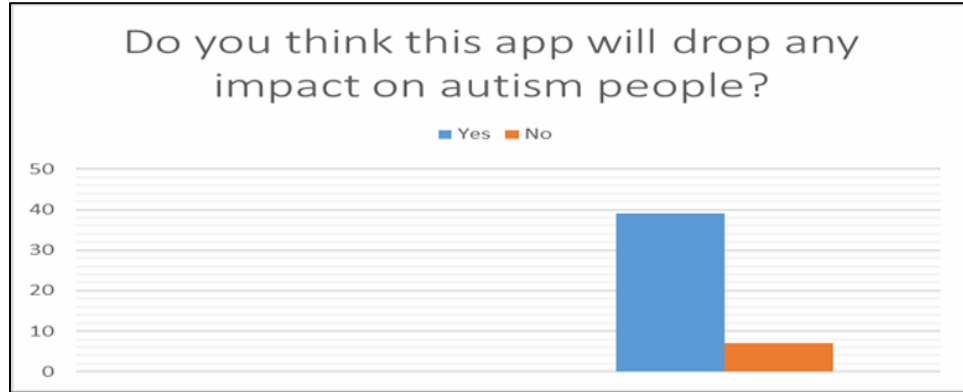


Figure 3.2.5: Drop any impact on autism people

In this part we asked a question, do you think this application will drop any impact on autism people, we gave two options to vote. 39 people vote for the yes and 7 people vote for no. So, we can say that the application will be useful for autism children.

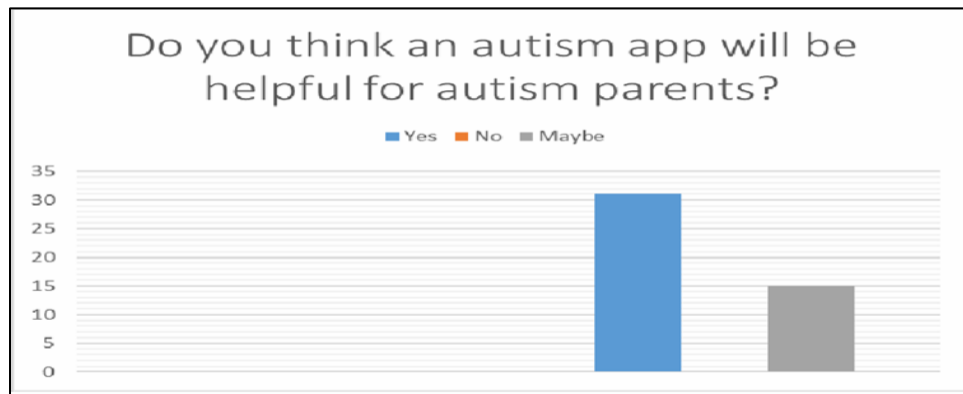


Figure 3.2.6: Helpful for autism parents

In this part we asked a question, did you think an autism application will be helpful for autism parents. 31 people vote for the yes and 15 people vote for maybe. So, we can say that autism application will be helpful for autism parents.

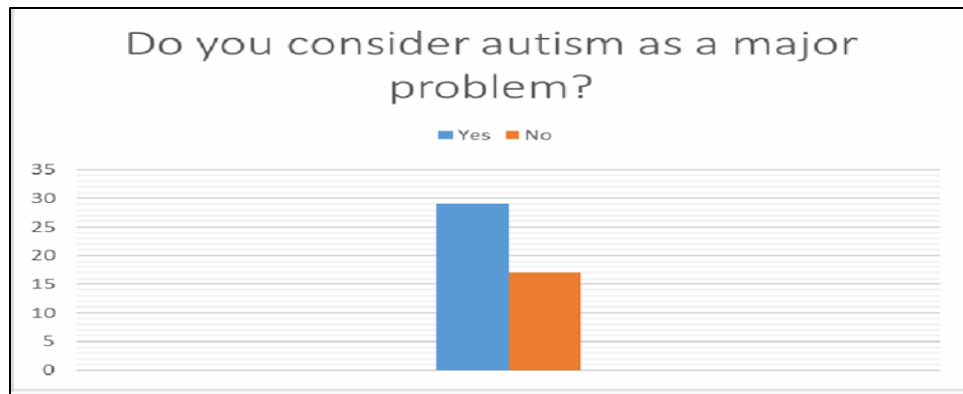


Figure 3.2.7: Autism as a major problem

In this part we asked a question, did you consider autism as a major problem. 29 people vote for the yes and 17 people vote for the no. So, we can say that autism is a major problem now a day.

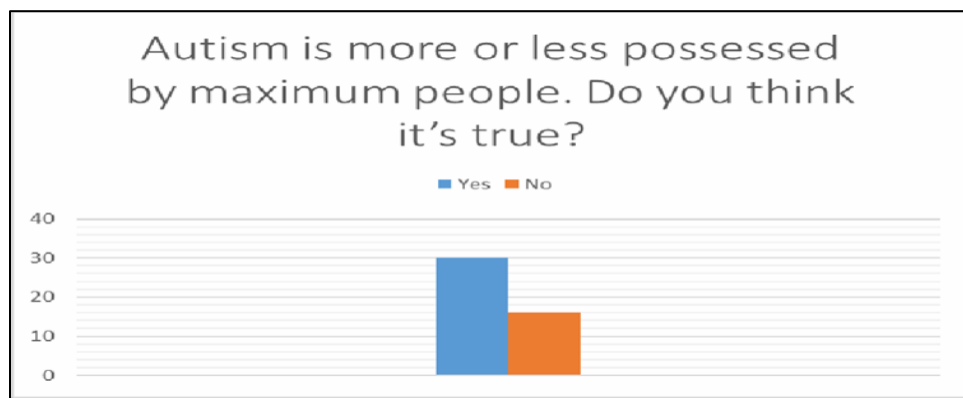


Figure 3.2.8: Autism is possessed by maximum people

In this part we asked a question, autism is possessed by maximum people. Do you think it's true? 30 people vote for the yes and 16 people vote for the no.

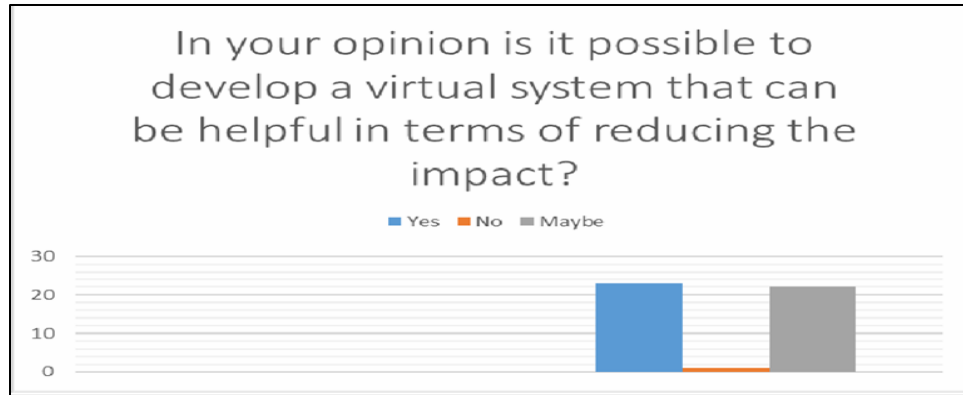


Figure 3.2.9: Virtual system

In this part we asked a question, was it possible to develop a virtual system that can be helpful in terms of reducing the impact. 23 people vote for the yes, 2 people vote for no and 16 people vote for maybe. So, we can say that virtual system can be helpful for autism children.

3.3 Use Case Modeling and Description

The system after careful analysis has been identified to be presented with the following actor. The actors involved are:

- User
- System

Use case description contains information about full part of the Use case Model shown in the below picture.

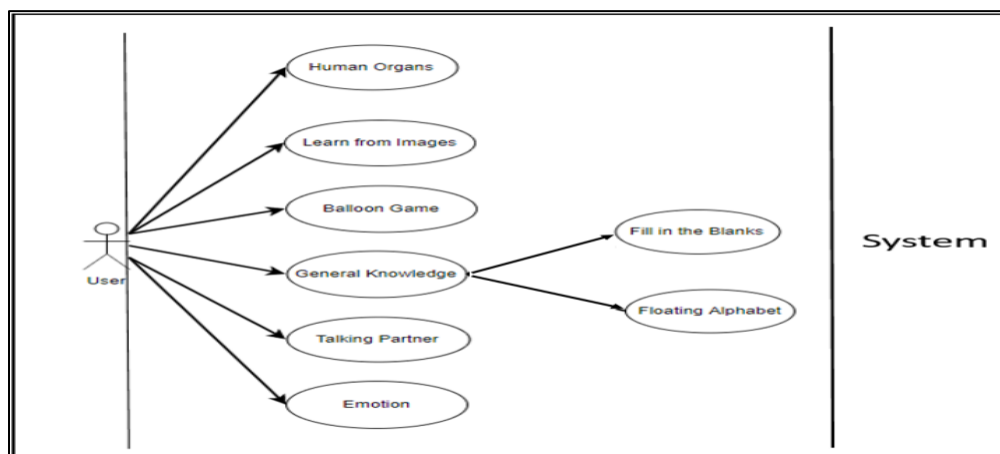


Figure 3.3.1: Use Case Model

3.4 Logical Data Model

The logical model is based on our project fluently. The exact data and the connections are specific.

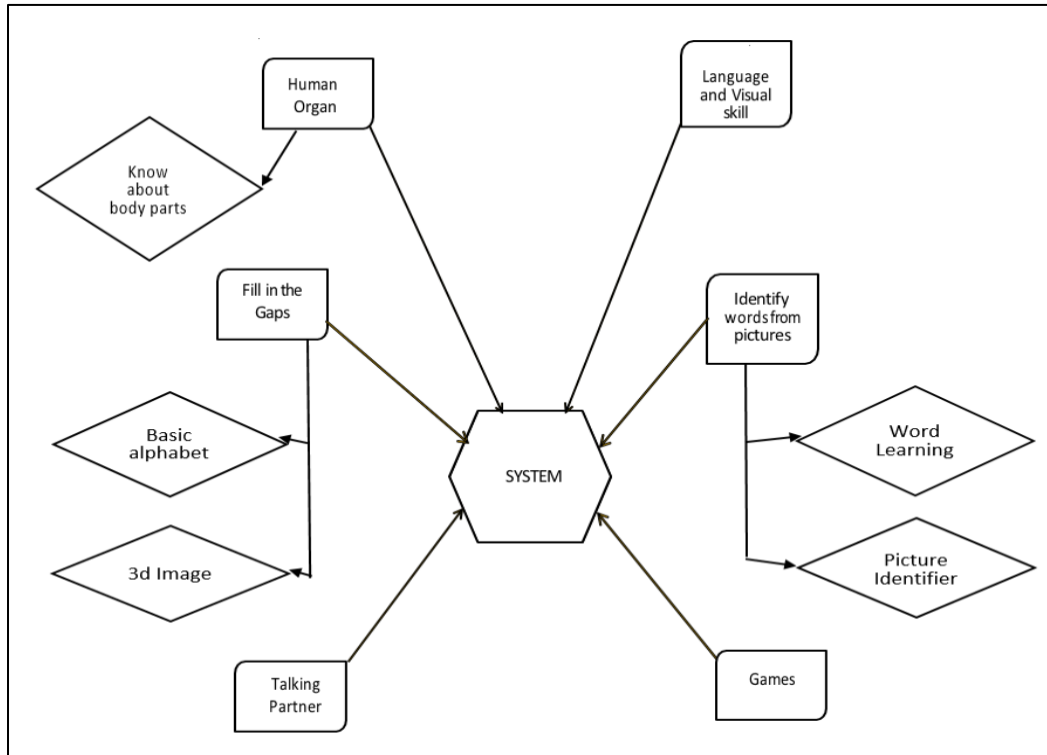


Figure 3.4.1: Block Diagram

3.5 Design Requirement

Design specifications is very important for satisfying the developing project. We have attached the business model, demography and survey of some major term, Use case model, and also added logical data model to fill our design requirements.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

Front-end design tools, which are used in developing our android application are given in the following-

- **Android Studio**

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems. It is a replacement for the Eclipse Android Development Tools (ADT) as the primary IDE for native Android application development.

- **Vision API**

Google Cloud's Vision API offers powerful pre-trained machine learning models through REST and RPC APIs. Assign labels to images and quickly classify them into millions of predefined categories. Detect objects and faces, read printed and handwritten text, and build valuable metadata into your image catalog.

- **Media Recorder Overview**

The Android multimedia framework includes support for capturing and encoding a variety of common audio and video formats. You can use the Media Recorder APIs if supported by the device. This api is use Media Recorder to write an application that captures audio from a device microphone, save the audio, and play it back (with Media Player). To record video, you'll need to use the device's camera along with Media Recorder. This is described in the Camera guide.

- **Mandelbulb 3d**

The Mandelbulb is a three-dimensional manifestation of the Mandelbrot set. It is an infinitely complex, naturally occurring fractal object. The Mandelbulb is an archetypal fractal form, embodying principles of deterministic chaos. The Mandelbrot set is the “most

complex object on the complex number plane” but arises from a simple formula, commonly expressed as $Z = Z^2 + C$.

- **Adobe Illustrator**

Illustrator CS was the first version to include 3-dimensional capabilities allowing users to extrude or revolve shapes to create simple 3D objects. Illustrator CS2 (version 12) was available for both the Mac OS X and Microsoft Windows operating systems. It was the last version for the Mac which did not run natively on Intel processors. Among the new features included in Illustrator CS2 were Live Trace, Live Paint, a control palette and custom workspaces. Live Trace allows for the conversion of bitmap imagery into vector art and improved upon the previous tracing abilities. Live Paint allows users more flexibility in applying color to objects, specifically those that overlap.

4.2 Back-end Design

It was a difficult task for us where to choose and implement for our system with a good database design. We have used the most popular SQLite database design to implement our database management system and for back-end implementation part we used JAVA.

4.3 Interaction Design and UX

We have designed our project in such a way that a user can easily understand the terms. We have tried our best to integrate the latest and updated design tools to make them user friendly. The tools of this application are utilized and the software is planned in a proper way that in the future it will be able to edit the design section and use more advanced technology.

4.4 Implementation Requirements

Some major requirements are required to complete a configured software system as needed. We have integrated some of the major tools that make it easy to develop our system.

Implementation of the system using Android Studio, Vision API, Media Recorder Overview, Mandelbulb 3d, Adobe Illustrator for frontend implementation. JAVA used for backend implementation. Responsive app designing is used for making the android application compatible for any type of screen.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

To implement the database system we used local database which is SQLite. It is an open source platform and used for free, it's built for mainly relational purpose. We didn't use any extra libraries, server to use SQLite with android because of which android device we are using this comes with built in SQLite database implementation. SQLite saves data into a text file and it saves locally in the Android system.

5.2 Implementation of Front-end Design

We have coordinated our major and first section in the front-end design. After opening the application, user can see the main features like as front page, human organs, learn from image, games, fill in the blanks, talking partner.



Figure 5.2.1: Front page

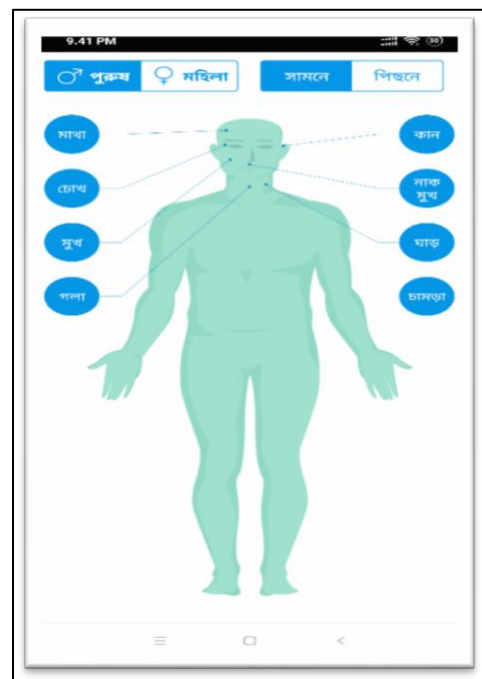


Figure 5.2.2: Human organs

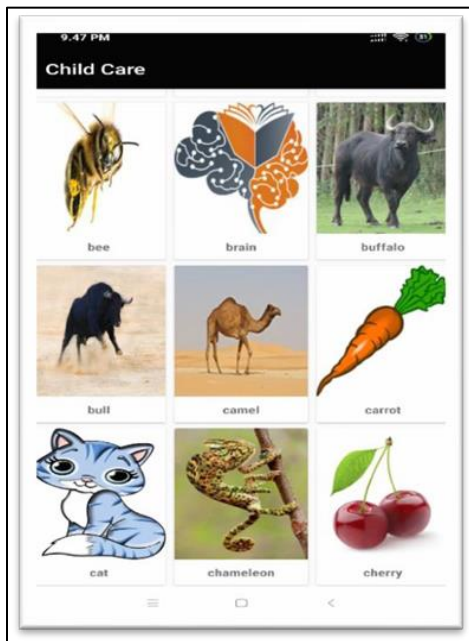


Figure 5.2.3: Learn from images

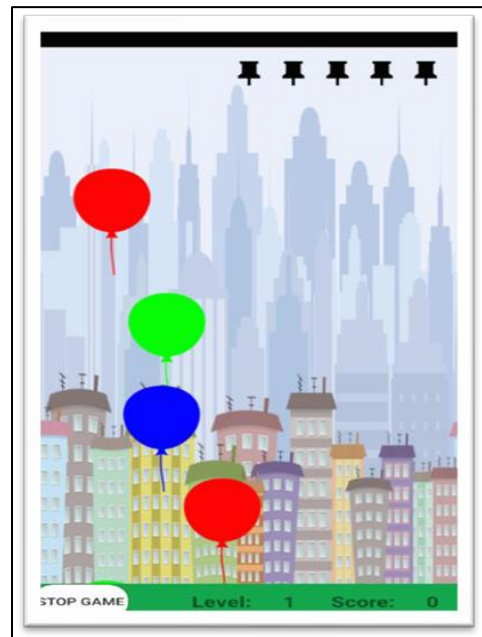


Figure 5.2.4: Games

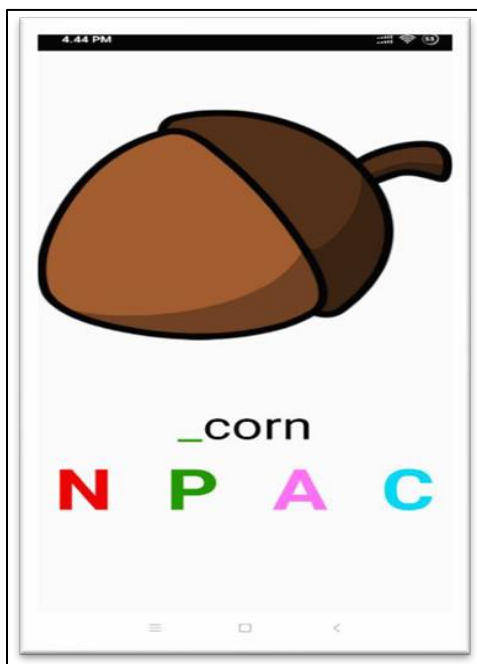


Figure 5.2.5: Fill in the blanks



Figure 5.2.6: Talking partner

5.3 Implementation of interactions

This application will provide a lot of interest in the service of learning system by implementing the process. For our development project purpose we surveyed on the top of some kids, we wanted to see how much this design or system is to take them to their emotion. After finishing the survey we meet a good outcome with that design implementation. For interaction purpose between the application and user we wanted to add only one unique platform with the traditional section. So that between the learning process and children get a good interaction by this application.

5.4 Testing Implementation

Testing is done to test the performance of the developed project features. Testing implementation is done in such a way that the application's features specifications and bugs are clear. Each feature has been tested in the simply smartest way possible, so that a user does not have to face distraction.

- **Did your kid like the app?**

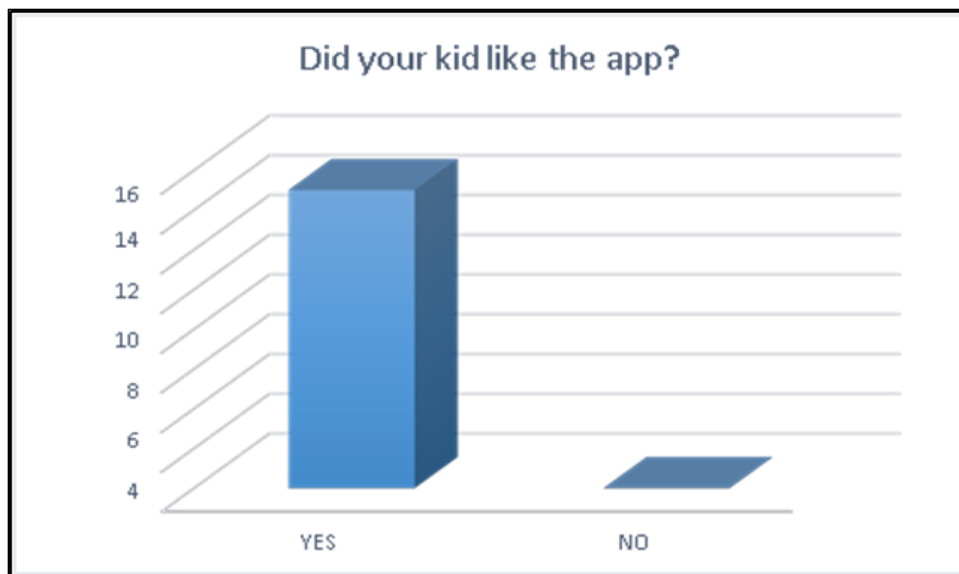


Figure 5.4.1: Did your kid like the app?

- Which feature of the app does the child like?

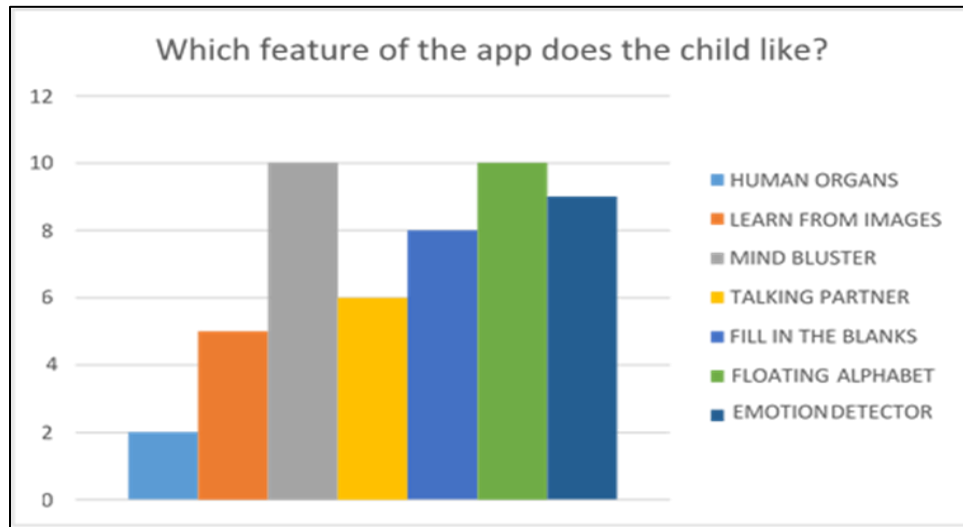


Figure 5.4.2: Which feature of the app does the child like?

- Have you noticed any improvement in your child's mental health after this application use?

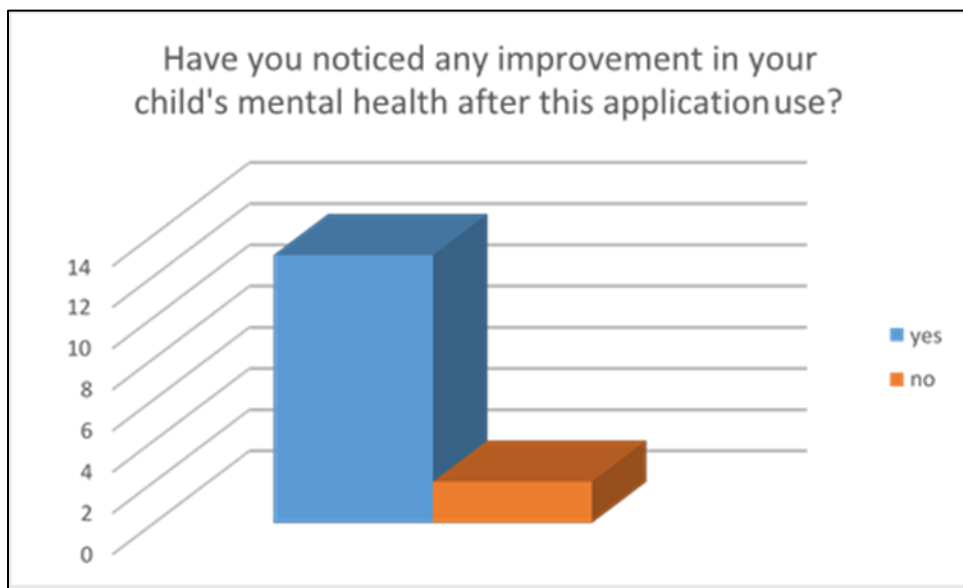


Figure 5.4.3: Mental health improvement

5.5 Testing Results and Reports

Our research was based on the autistic child those who are 5 to 8 years old. Our project goal is to help the child parents or their teacher. For better project we want to know which kind of project they want for their child or students.

We first going for a survey, where we can get some suggestion of our project features. Then, after three and half month hardworking we build an app which name is Child care. After building this app, we upload this app in Google app store, where every people can download and play this for their children. This app is not only for autism children, this will also use for any children. For testing, first we go for some parents, who have 4-8 years children. Then we install the app in there phone to use this app to their children. We also tell about the features and the application and benefits of every features. After a week, we again go there place and collect some information, suggestion, problems. They told about some problems like they found some bug some of our features. They told us how happy their child to run this app. They also told us what features they like most. First, they told us the floating alphabet feature they like most, because this feature is playing a role of fun as learning process. Second, they like the fill in the gaps features this also fun and learning for children. Third balloon games, there children like this game very much and this also have some basic knowledge question, which will help their child learn something. Fourth emotion detector, some parents says that this feature will help their children to in one place. Fifth talking partner, which also help their child as fun and entertainment. Lastly learn from image features helps their children to learn the 3d image name in English and Bengali.

After reviews of all the parents for this app, they give us some suggestions what they need for their children and what is better features for our application. They told us to add some feature which will have some basic mathematics, add more 3d image in learn from image features and many more.

Some Constant Information

This is the technical process to test a system. We focused on black box testing and done this. This testing system mainly based on structure requirements and functionality.

Table 5.5.1: Black Box Testing

Testing Section	Description	Bug & Action	Status
System	Open the system/Application.	No Bug Found	Fair
Main features/Home page	After open the app main feature are showed which has been tested.	No Bug Found	Fair
Human body	Human body is one of the main feature part which has been tested and works properly.	NO Bug Found	Fair
Learn from image	Added many type images of fruit, animal and other things which has been tested.	No Bug Found	Fair
Balloon Game	Set up level based balloon games which has been tested.	No Bug Found	Fair
General Knowledge	It has two parts and have some technical problem.	Bug Found	Not Fair
Talking partner	Set a talking partner which has been tested.	No Bug Found	Fair
Emotion	It has been tested and work properly.	No Bug Found	Fair

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

Children's education is always a great deal for the parents. They always try to find the best way to teach their preschool children. Sometimes, this work can be hard for some parents. Sometimes they appoint some teacher for this which won't help much as the children have a very soft mind and they sometimes don't like their teacher. To overcome this obstacle, we try to build a learning application which will help the parents to teach the basic of the alphabets to their children with the help of the floating alphabet feature. This project focus on the preschool children's education with this noble cause. As this generation's children are used to smartphones and tablets they can learn from our application with their own wills. They will learn enthusiastically and fast. It'll reduce the parents work so much easier than before. Even the children can just play with it and they will automatically learn the basic of alphabets without their consent. As children's loves 3D models and animation, they will find this application very appealing to them and they will use the application more and will learn fast.

6.2 Scope for Further Developments

This application is use for 3-5 years children, there are some feature which we will develop in future, like visual therapy, some basic mathematics, online trainer and many more things which will help a preschool going children to learn many things from this application.

Vision therapy is a doctor-supervised, non-surgical and customized program of visual activities designed to correct certain vision problems and/or improve visual skills. Vision therapy -- a type of physical therapy for the eyes and brain -- is a highly effective non-surgical treatment for many common visual problems such as lazy eye, crossed eyes, double vision, convergence insufficiency and some reading and learning disabilities. We will develop this function for autism children. If a child has a diagnosis on the autism spectrum, they should have a comprehensive vision evaluation with a developmental optometrist. It is not necessary for a patient to be verbal to have a vision evaluation with an eye doctor at The Solution Center. Our doctors and therapists are very experienced in evaluating and treating patients with autism.

We will develop this function for the preschool children, because mathematics is very important for their school life. Early childhood education should introduce simple mathematical concepts. By introducing children to basic terminology early in childhood, teachers are making the elementary education a little easier, and introducing math concepts should start when children are around three years old. We will build a game for this feature.

Lastly, we say that we face many bug in our application, so our focus to fixed bug for our application, then we try to develop our future feature for our application.

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APPENDICES

Appendix A: Project Reflection

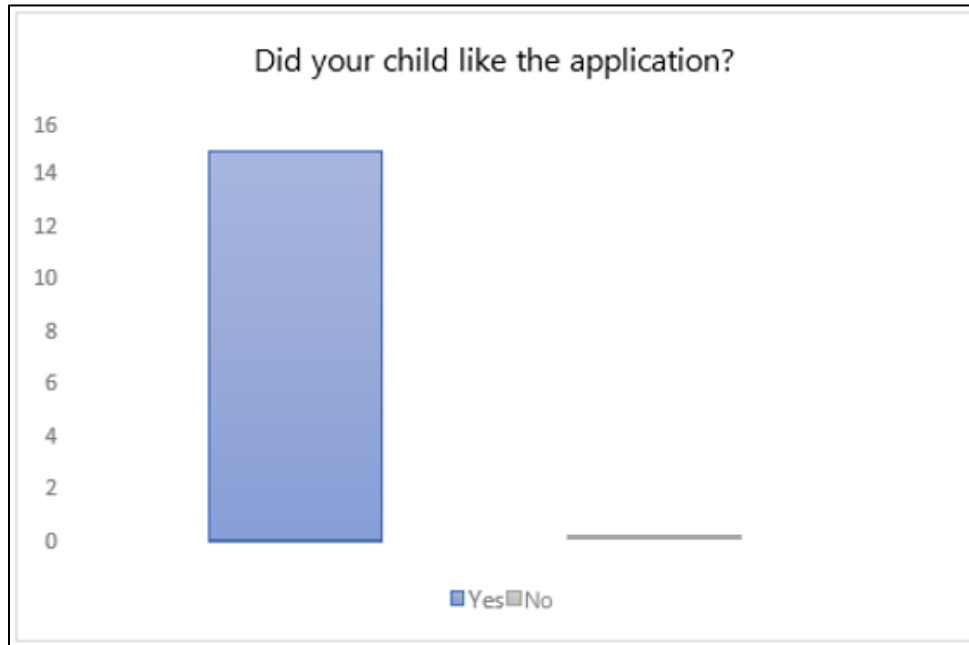


Figure A1: Like the application?

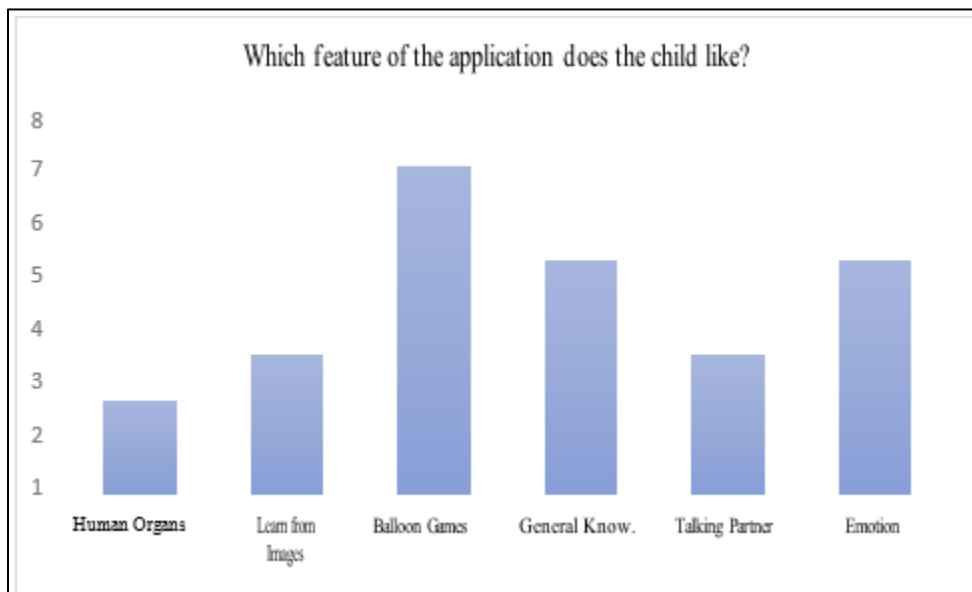


Figure A2: Which feature like?

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ABSTRACT Smartphone has become a great tool for teaching kids. As kids nowadays spend a lot of time on a smartphone. Preschool education is considered pivotal for a child's development. The problem that we are seeing so much nowadays is that kids talk or respond a little late in the right time. That's why we want them to be in a regular learning process with one of our application. Mobile learning is a new way to access learning content. Mobile learning is very popular among preschool kids. Because it really motivates kids to learn if they can use mobile phones or tablets. That's why we have developed a marker-based AR application, which will help children to learn or study the basics of Alphabets with fun. While using our application, kids will learn interactively with the help of Augmented Reality. Our app will help the parents teach their kids without much effort. CHAPTER 1 INTRODUCTION 1.1 Introduction In this <u>modern era</u> of smartphone <u>and</u> tablet, children playing with tablet or smartphone is no wonder. This becomes very normal to the society. Even sometimes children can have their own smartphone and tablet which makes them spend most of their time with these devices. This encourage us to make something that can benefit children's education with the help of this devices. So, this motivates us to make a learning and fun application that can help the children learn the basic of Alphabets in their time while using these devices. Most of the time they will waste their time by doing unnecessary things but if they play with this application, they can have both fun and education. The children will have fun using this application as it shows 3D model along with sound of many pictures. Children that are started learning alphabet, can learn more interactively and with fun and fast speed than learning in a normal conventional way. A preschool child can be the most benefited for using this application. 1.2 Motivation <u>Nearly a 3rd of individuals on the syndrome spectrum use no oral communication or solely many words. All these individuals could be described as having nonverbal autism. Yet the term "nonverbal autism" has no official standing, and there is no such diagnosis as "nonverbal autism."</u> <u>In part, that's because there is no clear line between verbal and nonverbal individuals with autism. For example, some people with nonverbal autism do develop the ability to use a few words in a meaningful manner but are unable to carry on any kind of significant conversation.</u> Some "nonverbal" people can <u>speak but lack the ability to use language in a meaningful way. These</u> people might "echo" <u>scripts from TV or expressions they have been schooled by therapists. Instead of victimization these scripts to speak ideas or needs, however, they seem to use "scripting" as a form of self-calming stimulation. Quite a few nonverbal</u> people cannot <u>use</u> oral communication <u>effectively</u> however <u>are able to communicate with written or written language, American Sign Language, picture cards, or digital communication devices. Once</u> a personal <u>is effectively</u> human action, <u>even without spoken language, their ability to engage in the world expands dramatically.</u> One <u>of</u> the strangest aspects <u>of</u> nonverbal syndrome is that the incontrovertible fact that nobody very is aware of why some folks with syndrome cannot, <u>or don't, use spoken language. It is</u> particularly <u>puzzling</u> as <u>a</u> result of quite <u>few nonverbal folks on the spectrum</u> will <u>and do</u> value more highly <u>to communicate</u> victimization yank signing, <u>picture cards, and a range of digital tools. True, some</u> folks <u>with</u> syndrome even <u>have childhood</u> brain disease <u>of speech</u>, an upset <u>that</u> produces oral communication very troublesome. <u>But most nonverbal</u> people <u>on the</u> syndrome <u>spectrum</u> do not <u>have apraxia</u>; <u>they</u> merely do not <u>speak. Clearly, there are</u> variations <u>in brain</u> operate <u>that inhibit</u> oral communication, however <u>at this</u> time, <u>there's</u> <u>no agreement on</u> simply <u>what those</u> variations <u>are or</u> however <u>they impact any given individual.</u> An app can be developed for autistic child's which can make them enthusiastic to talk. And after a lot of research we found that. 1.3 Objectives <u>Verbal Behavior (VB) therapy teaches communication and language. It is based on the principles of Applied Behavior Analysis. This approach encourages</u> folks <u>with</u> syndrome <u>to</u> find out <u>language by connecting words with their</u>

functions. [The student learns that words](#) will facilitate [them get desired objects or results](#). Verbal psychotherapy doesn't specialize in [words as labels](#) solely ([cat, car, etc.](#)). Rather, it teaches [why we use words and how they are useful in making requests and communicating ideas](#). Verbal Behavior therapy begins by teaching demands ([requests](#)) as the most basic type of language. For example, the individual with autism learns that saying "cookie" can produce a cookie. As soon as the student makes a request, the therapist repeats the word and presents the requested item. The expert then uses the word once more within the same context to strengthen that means. The person doesn't have to say the particular word to receive the specified item. At first, he or she merely must create letter of invitation by any suggests that ([such as pointing](#)). The person learns that communicating produces positive results. The therapist then helps the student shape communication over time toward saying or signing the actual word. In a typical session, the teacher asks a series of questions that combine easy and hard requests. This allows the student to be successful more often and reduces frustration. The teacher ought to vary the things and directions in ways in which keep the scholar interested. Verbal psychotherapy uses a way known as "errorless learning." Errorless teaching suggests that victimization immediate and frequent prompts to make sure the scholar provides the right response whenever. Over time, these prompts are reduced. Eventually the scholar now not desires prompting to supply the right response. So, it concludes by the given feature that our app is going to produce such environment so that it provides visual therapy which can make the challenged children enthusiastic.

1.4 Expected Outcome In this modern era, most of the people spend lot of time using mobile. Kids are also using mobile most of the daily time. We keep in mind this thing when we choose our project. Another thing is that there are few works in Bangladesh about this topic. That's why we choose this project topics. Our main aim is to make the programming/engineering concept we earn and spread it for a better implement. There is some work done before and has some similarity with our project, but our project is more updated than their project. Most of our project feature are different from their feature and which is very helpful for children and their parents. Another good thing of our project is it is cost efficient.

1.5 Report Layout In this project a full summary of our system and connected work and terminologies area unit given step by step. We recently created a survey on this similar work and take a look at to what's a lot of scope to develop this existing project. In chapter two we describe the challenges and facing downside that is build tough to us. Another chapter three we describe the 3 stage of background. We conjointly describe the necessity specification and take a look at to disclose users demand. In, chapter four and five we disclose however we solve the matter and what we use to implement the project. Finally, in chapter six we remark some closing and suggestions for future works.

CHAPTER 2 BACKGROUND 2.1 Introduction In this era of modern innovation, there are a lot of mobile apps, which are focusing on teaching preschool kids. But very few of these apps are fun and engaging for a preschooler kid. Not many of these apps are interactive. That's why kids are not very interested in using these apps for education purposes. So, we tried to solve this problem with the help of build a learning application. There are some apps that are using for educational purposes. But most of them are for high scholars or college students. This chapter emphasizes on the existing solutions that are concentrating on the education of a preschool kid with the help of mobile apps and how these educational apps can become more effective in making the app more suitable for the preschool age kids.

2.2 Related Works Relative works basically indicate what kind of work this topic relates to. Here we searched that are we motivated by this tasks, whether there is any information to provide, which will be helpful in our project development. We found some of these relatable work at the international and regional levels from we received information and compared our project with others. ? Educational App for [Children with Autism Spectrum Disorders](#) Kids with [Autism Spectrum Disorders](#) (ASDs) are normally analyze by the unsettling influences in the accompanying areas; social relatedness, correspondence/play, and limited interests and exercises. Therefore, cooperating and speaking with youngsters with ASDs are many-sided due to their absence of verbal and nonverbal relational abilities. Understanding the requirements of the kids are likewise a testing task as a result of their trouble in communicating their requirements verbally. They mainly focus on Correspondence/play incorporates either a postponement or complete absence of spoken language and absence of formatively fitting pretend or social play and Restricted interests and exercises incorporates enveloping distractions, adherence to non-practical schedules or ceremonies, generalizations and engine idiosyncrasies. The application is separated into two primary use cases, considering two sorts of clients, for children with ASDs and for their guardians. The parent's panel use as to click some pictures and write some command line. The children click that picture and listen the command. There also an identifying child button which will identify a child by clicking the pictures. The Educational App is made to assist kids with ASDs to improve their relational abilities with other. Children with ASDs can pursue the way toward learning by tuning in to the sound in the wake of associating with the image of the article. It can likewise assist their folks with understanding the necessities of their youngsters since it can maintain a strategic distance from any undesirable miscommunication. They will use this app online for learn some of things like how they communicate with parents with some help of the picture they will show in their application. They cannot use any educational things which will help them to communicate with their parents. ? [Fill Me App: An Interactive Mobile Game Application for Children with Autism](#) Fill Me App is an intelligent portable amusement application which is a valuable learning material expected for kids with Autism that causes them to propel in their learning process. This diversion application is center for the most part around Science essentially on distinguishing the [human's body parts](#). Collecting the best time for center observing, eye-catching illustrations, straightforward dimension of activities, video instructional exercise what's more, ambient melodies that match with the current instructive lessons are among the essential highlights that this application brings to the table. Two clients can use the application. The instructor can sign in, view, screen and assess the understudy's execution dependent on how the understudy reacts to the diversion. The educator will login to screen and assess the understudies' exhibitions. The instructor will see this assessment through the web application. The instructor is fit for observing and assessing his understudy's execution. The educator can screen and assess one's execution by appearing of the amusement through a chart for each dimension of activities. Every one of the information from the understudy's preliminaries of the amusement per level up to the most recent will be put away on the database by means of online through web application. The Fill Me App which is an advantageous instrument towards children with Autism has more range of consideration as opposed to the books or visual guides, they concentrate more on the amusement and were spurred as opposed to the customary techniques. Be that as it may, the analysts additionally finished up regardless of the effectivity of Fill Me App towards kids with Autism, the age likewise matters. The fundamental objective of this is to help and help the Autistic youngsters that would improve their comprehension and capacities by building up a learning diversion application explicitly in the Science subject regarding with the Human's body parts. This app use only for which autism children will like to play game. They cannot use any satisfying video for relaying then. They use some game which will have some eye-catching graphics. After playing game, some analyzing result will show in trainer account. But they can use any educational things which will help in future. They also do not have ant parent's account, where parents can show the analyzing result. ? What We Can't Understand: The Non-Verbal Communication Among Autistic Children [Autism affects 1 in 68 children in the United States. This rate has jumped 30 percent since 2014 and remains one of the fastest-growing developmental disorders in the nation today. \(Autism Speaks\)](#). Parents of autistic children are often told by medical professionals that if their child of communication the odds are not completely against them. They developed a mobile application which help special child by voice command, child learn and practice different emotional image for expressing their emotion to develop their verbal communication. They try to use many methods that families of the non-verbal child can help them to communicate. Many games, positive sound added so that child express their feelings in positive way by voice their speech and emotion. This App has well organized features so that child with autism can work their weakness and they worked on mainly nonverbal communication added many methods to make their app more interesting using alpha grid method. It is true that child can communicate with families by the features they developed in their application. But we cannot see any educational things which will help them to communicate with their parents. In our project we will provide visual therapy by VR box where child may get some mental satisfaction as well as we will develop some of educational part and some of parents and trainer communication part which will helpful for both parents and children. In our project we develop a part which is identify a word from a picture, Language and visual skill which will help the student to learn some language. We also use online trainer which

also help for autism trainer and parents for training something. ? Autism children's app using PECS They add some good features. Such as Register, Login page, Main menu, Pecs Sentence Structure Book, Questions and answers, Single work learning. Single work learning divided into 6 subcategories Such as Animals, colors, shapes, Emotion etc. This app is very helpful for the autism children because of some good features. One of the features was single work learning. This part helps the autism children to know about animals, colors, emotion etc. I think the most useful part of this project is PECS sentence structure book. It's help the autism child in communication and sentence building such as I want food. I think in this project the developers miss some features such as Math calculation, online trainer, talking partner. ? [Design and Evaluation of a Mobile Learning application for Autistic Children in a Developing Country](#). This research is [based on the literature review and a user research performed with the parents of children with ASD at a school in Lahore, Pakistan](#). He tried to address two different problems faced by the children diagnosed with Autism, 1) Communication Problems, 2) Social and Emotional Problems. They present a web-based feedback system for parents in order to keep track of weekly improvement trends of each child after using their applications. Their mobile learning applications for autistic children based on 5 main structures. Those were 1) Collaborative Learning, 2) Coloring Activity, 3) Learning Emotions, 4) Social Learning, 5) "Guess who?" game. They enabled children to draw several drawings and express themselves accordingly on the chart paper with pencil as well as on android tablet device with the help of touch pen. They intended to perform a comparative study with an equivalent paper-based system of their app. They collected information about the feedback of this activity from teachers after every week. Based on it they wanted to measure the level of satisfaction of the parents and level of improvement in the children through the feedback from the teachers. I think their work keeps impact on Collaborative Learning. Collaborative Learning is an environment in which a group of more than two individual collaborate to perform a task. In our daily life, every individual must go through such a situation. Children with autism find it hard to interact with their peers because of lesser social and communication abilities. By using their mobile learning application children feel comfortable with the use of pencil. However, this activity enabled the autistic children to express themselves on paper through their art. Collaborative learning will enhance their art skills. They will learn about the story. They will also learn how to make the drawing according to a story. Their main work based on Collaborative Learning. But Children with autism find it hard to interact with their peers because of lesser social and communication abilities. Without the help of adults, it will difficult for interacting with ASD children. ? An interactive app [for learning numeracy and calculation for children with autism](#). What they did: They create a very good project. They have some good features that are beneficial for autism children. Some of the better features are levels of learning numbers, recognize number, match number, augmented reality, learn calculation. These applications are important due to their characteristics. One of the best features they use is the augmented reality. This feature makes this application more realistic and makes it more interactive. Other features are helpful for learning. They did a very amazing project, but I think one of the features missed in this project is Teacher guideline such as a teacher who can always monitor the autism child. They can also add the VR box for realistic video. 2.3 Comparative Studies What we realized from our place of thought was that this application creates an environment whereby trainers, parents and children's can learn and teach from a platform. Because of the easiest way of learning process of this application, the child will be able to learn on their own without a trainer or parent. We will believe that this learning platform will create a positive communication of teaching development. 2.4 Scope of the Problem In our project we will develop some of educational part and some of parents and trainer communication part which will helpful for both parents and children. In our project we develop a part which is identify a word from a picture, Language and visual skill which will help the student to learn some language. We also use online trainer which also help for autism trainer and parents for training something. 2.5 Challenges In this chapter we focused on the related works that had been done. Although there are some educational apps, but not many of them are targeting the same demographic as we are targeting. So basically, there are not many educational apps for preschool age kids. That's why we are making an educational app for preschool age kids. [CHAPTER 3 REQUIREMENT SPECIFICATION 3.1 Business Process Modeling Business model is a system that incorporates the process features of a system into a very good model](#). When creating the application we only see it as a learning process assistant for education purpose. But we have a model built for business model platform and that is given below [Figure 3.1. 1: Business model 3.2 Requirement Collection and Analysis Requirements](#) of resource collection plays a key role in completing a project beautifully. We need to integrate a development project environment, multiple field surveys, research papers followed for getting the ideas about the meaningful implementation about this project. We also added conversation with kids and their parents and did more words to develop our project needs. In our readings and from some news sources and others we have found out that most of the autistic symptoms are being denied and kept unrevealed by the parents. Three types of autism are mostly available all around the world. In our project our initial goal is to do something with verbal autistic children. This is the type mostly found in our country. Children who doesn't talk sufficiently or already over aged to talk normally are in this category. Identifying the types, the study will work based on how it can be possible to make them act normal, make them talk or make them enthusiastic to talk. Based on their built-in ability different, the typical complicated problem possessed children can be observed. This might help different level, diversity in the system to be controlled or selected by the provider who acts as guide to that child. By observing the results of our survey questions, we can hope that working over autism people which predict that if any people have any autism syndrome in their face or body. In order to make the prediction to better the researchers conducted a survey over the autism center. The main purpose of the survey was to discover their opinion about autism people. We conducted interviews over the online and going to especially from people who are affects this autism. Survey usually lasted around 7 day over the online and consisted of 9 structured questions related to them experiences of autism people. Both males and females were included in the survey. The focus of the questions was on the impacts of autism application, the precursors of the events, their suggestions on how to improve prediction on such events and preventions method through an application. In the first section below, we show the demography of gender, ages and some other questions result. After that we talk about our application and what are the features, we will implement in future. ? Demography Table [3.2.1: Gender](#) [Gender](#) Participants [Male](#) 36 [Female](#) 10 [Figure 3.2.1: Gender](#) Table 3.2.2: Ages [Ages](#) Participants 13 - 20 0 21 - 28 41 29 - 36 3 37 - 44 2 45 - 52 0 [Figure 3.2.2: Ages](#) ? Survey [Figure 3.2.3: Define autism](#) In this part we asked a question how well you can define autism, majority of the participants vote for I understand autism a bit, 33 people vote this option. After that I have heard about autism before 5 people vote this option. So, we can say that many people understand what autism is. [Figure 3.2.4: Prefer to learn about autism by application](#) In this part, we asked a question How would you prefer to learn about autism by application, participants vote majority for online video option, 20 people vote for this option. Some people also vote for research on my own. So, we can say that people like online video option most. [Figure 3.2.5: Drop any impact on autism people](#) In this part we asked a question, do you think this application will drop any impact on autism people, we gave two options to vote. 39 people vote for the yes and 7 people vote for no. So, we can say that the application will be useful for autism children. [Figure 3.2.6: Helpful for autism parents](#) In this part we asked a question, did you think an autism application will be helpful for autism parents. 31 people vote for the yes and 15 people vote for maybe. So, we can say that autism application will be helpful for autism parents. [Figure 3.2.7: Autism as a major problem](#) In this part we asked a question, did you consider autism as a major problem. 29 people vote for the yes and 17 people vote for the no. So, we can say that autism is a major problem now a day. [Figure 3.2.8: Autism is possessed by maximum people](#) In this part we asked a question, autism is possessed by maximum people. Do you think it's true? 30 people vote for the yes and 16 people vote for the no. [Figure 3.2.9: Virtual system](#) In this part we asked a question, was it possible to develop a virtual system that can be helpful in terms of reducing the impact. 23 people vote for the yes, 2 people vote for no and 16 people vote for maybe. So, we can say that virtual system can be helpful for autism children. [3.3 Use Case Modeling and Description](#) The system after careful analysis has been identified to be presented with the following actor. The actors involved are: ? User ? System Use case description contains information about full part of the Use case Model shown in the below picture. [Figure 3.3. 1: Use Case Model 3.4 Logical Data Model](#) The [logical model](#) is based on our project fluently. The exact data and the connections are specific. [Figure 3.4. 1: Block Diagram 3.5 Design](#) Requirement [Design](#) specifications is very important for satisfying the

developing project. We have attached the business model, demography and survey of some major term, Use case model, and also added logical data model to fill our [design requirements](#). CHAPTER 4 DESIGN SPECIFICATION 4.1 Front-end Design Front -end design tools, which are used in developing our android application are given in the following- ? [Android Studio](#) [Android Studio is the official integrated development environment \(IDE\) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems. It is a replacement for the Eclipse Android Development Tools \(ADT\) as the primary IDE for native Android application development.](#) ? [Vision API](#) [Google Cloud's Vision API offers powerful pre-trained machine learning models through REST and RPC APIs. Assign labels to images and quickly classify them into millions of predefined categories. Detect objects and faces, read printed and handwritten text, and build valuable metadata into your image catalog.](#) ? [Media Recorder](#) [Overview The Android multimedia framework includes support for capturing and encoding a variety of common audio and video formats. You can use the Media Recorder APIs if supported by the device. This api is use Media Recorder to write an application that captures audio from a device microphone, save the audio, and play it back \(with Media Player\). To record video, you'll need to use the device's camera along with Media Recorder. This is described in the Camera guide.](#) ? [Mandelbulb 3d](#) [The Mandelbulb is a three-dimensional manifestation of the Mandelbrot set. It is an infinitely complex, naturally occurring fractal object. The Mandelbulb is an archetypal fractal form, embodying principles of deterministic chaos. The Mandelbrot set is the "most complex object on the complex number plane" but arises from a simple formula, commonly expressed as \$Z = Z^2 + C\$.](#) ? [Adobe Illustrator](#) [Illustrator CS was the first version to include 3-dimensional capabilities allowing users to extrude or revolve shapes to create simple 3D objects. Illustrator CS2 \(version 12\) was available for both the Mac OS X and Microsoft Windows operating systems. It was the last version for the Mac which did not run natively on Intel processors. Among the new features included in Illustrator CS2 were Live Trace, Live Paint, a control palette and custom workspaces. Live Trace allows for the conversion of bitmap imagery into vector art and improved upon the previous tracing abilities. Live Paint allows users more flexibility in applying color to objects, specifically those that overlap.](#)

4.2 Back-end Design It was a difficult task for us where to choose and implement for our system with a good database design. We have used the most popular SQLite database design to implement our database management system and for back-end implementation part we used JAVA. 4.3 Interaction Design and UX We have designed our project in such a way that a user can easily understand the terms. We have tried our best to integrate the latest and updated design tools to make them user friendly. The tools of this application are utilized and the software is planned in a proper way that in the future it will be able to edit the design section and use more advanced technology. 4.4 Implementation Requirements Some major requirements are required to complete a configured software system as needed. We have integrated some of the major tools that make it easy to develop our system. Implementation of the system using Android Studio, Vision API, Media Recorder Overview, Mandelbulb 3d, Adobe Illustrator for frontend implementation. JAVA used for backend implementation. Responsive app designing is used for making the android application compatible for any type of screen. CHAPTER 5 IMPLEMENTATION AND TESTING 5.1 Implementation of Database To implement the database system we used local database which is SQLite. It is an open source platform and used for free, it's built for mainly relational purpose. We didn't use any extra libraries, server to use SQLite with android because of which android device we are using this comes with built in SQLite database implementation. SQLite saves data into a text file and it saves locally in the Android system. 5.2 Implementation of Front-end Design We have coordinated our major and first section in the front-end design. After opening the application, user can see the main features like as front page, human organs, learn from image, games, fill in the blanks, talking partner. Figure 5.2.1: Front page Figure 5.2.2: Human organs Figure 5.2.3: Learn from images Figure 5.2.4: Games Figure 5.2.5: Fill in the blanks Figure 5.2.6: Talking partner 5.3 Implementation of interactions This application will provide a lot of interest in the service of learning system by implementing the process. For our development project purpose we surveyed on the top of some kids, we wanted to see how much this design or system is to take them to their emotion. After finishing the survey we meet a good outcome with that design implementation. For interaction purpose between the application and user we wanted to add only one unique platform with the traditional section. So that between the learning process and children get a good interaction by this application. 5.4 Testing Implementation Testing is done to test the performance of the developed project features. Testing implementation is done in such a way that the application's features specifications and bugs are clear. Each feature has been tested in the simply smartest way possible, so that a user does not have to face distraction. ? Did your kid like the app? Figure 5.4.1: Did your kid like the app? ? Which feature of the app does the child like? Figure 5.4.2: Which feature of the app does the child like? ? Have you noticed any improvement in your child's mental health after this application use? Figure 5.4.3: Mental health improvement 5.5 Testing Results and Reports Our research was based on the autistic child those who are 5 to 8 years old. Our project goal is to help the child parents or their teacher. For better project we want to know which kind of project they want for their child or students. We first going for a survey, where we can get some suggestion of our project features. Then, after three and half month hardworking we build an app which name is Child care. After building this app, we upload this app in Google app store, where every people can download and play this for their children. This app is not only for autism children, this will also use for any children. For testing, first we go for some parents, who have 4-8 years children. Then we install the app in there phone to use this app to their children. We also tell about the features and the application and benefits of every features. After a week, we again go there place and collect some information, suggestion, problems. They told about some problems like they found some bug some of our features. They told us how happy their child to run this app. They also told us what features they like most. First, they told us the floating alphabet feature they like most, because this feature is playing a role of fun as learning process. Second, they like the fill in the gaps features this also fun and learning for children. Third balloon games, there children like this game very much and this also have some basic knowledge question, which will help their child learn something. Fourth emotion detector, some parents says that this feature will help their children to in one place. Fifth talking partner, which also help their child as fun and entertainment. Lastly learn from image features helps their children to learn the 3d image name in English and Bengali. After reviews of all the parents for this app, they give us some suggestions what they need for their children and what is better features for our application. They told us to add some feature which will have some basic mathematics, add more 3d image in learn from image features and many more. Some Constant Information This is the technical process to test a system. We focused on black box testing and done this. This testing system mainly based on structure requirements and functionality. Table 5.5.1: Black Box Testing Testing Section Description Bug & Action Status System Open the system/Application. No Bug Found Fair Main features/Home page After open the app main feature are showed which has been tested. No Bug Found Fair Human body Human body is one of the main feature part which has been tested and works properly. NO Bug Found Fair Learn from image Added many type images of fruit, animal and other things which has been tested. No Bug Found Fair Balloon Game Set up level based balloon games which has been tested. No Bug Found Fair General Knowledge It has two parts and have some technical problem. Bug Found Not Fair Talking partner Set a talking partner which has been tested. No Bug Found Fair Emotion It has been tested and work properly. No Bug Found Fair

CHAPTER 6 CONCLUSION AND FUTURE SCOPE 6.1 Discussion and Conclusion Children's education is always a great deal for the parents. They always try to find the best way to teach their preschool children. Sometimes, this work can be hard for some parents. Sometimes they appoint some teacher for this which won't help much as the children have a very soft mind and they sometimes don't like their teacher. To overcome this obstacle, we try to build a learning application which will help the parents to teach the basic of the alphabets to their children with the help of the floating alphabet feature. This project focus on the preschool children's education with this noble cause. As this generation's children are used to smartphones and tablets they can learn from our application with their own wills. They will learn enthusiastically and fast. It'll reduce the parents work so much easier than before. Even the children can just play with it and they will automatically learn the basic of alphabets without their consent. As children's loves 3D models and animation, they will find this application very appealing to them and they will use the application more and will learn fast. 6.2 Scope for Further Developments This application is use for 3-5 years children, there are some feature which we will develop in future, like visual therapy, some basic mathematics,

online trainer and many more things which will help a preschool going children to learn many things from this application. Vision therapy is a doctor-supervised, non-surgical and customized program of visual activities designed to correct certain vision problems and/or improve visual skills. Vision therapy -- a type of physical therapy for the eyes and brain -- is a highly effective non- surgical treatment for many common visual problems such as lazy eye, crossed eyes, double vision, convergence insufficiency and some reading and learning disabilities. We will develop this function for autism children. If a child has a diagnosis on the autism spectrum, they should have a comprehensive vision evaluation with a developmental optometrist. It is not necessary for a patient to be verbal to have a vision evaluation with an eye doctor at The Solution Center. Our doctors and therapists are very experienced in evaluating and treating patients with autism. We will develop this function for the preschool children, because mathematics is very important for their school life. Early childhood education should introduce simple mathematical concepts. By introducing children to basic terminology early in childhood, teachers are making the elementary education a little easier, and introducing math concepts should start when children are around three years old. We will build a game for this feature. Lastly, we say that we face many bug in our application, so our focus to fixed bug for our application, then we try to develop our future feature for our application.

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