DESIGN AND DEVELOPMENT OF AN ANDROID BASED E-LEARNING APPLICATION 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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APPROVAL

This Project/internship titled **"Design and development of an android based E-Learning Application for kids"**, submitted by Kaniz Fatima Ripa, ID No: 161-15-6747 and Nabila Sultana. ID No: 161-15-6884to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 06-12-2019.

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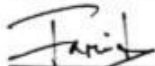Faculty of Science & Information Technology
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We hereby declare that, this thesis base project has been done by us under the supervision of **Mr. Abdus Sattar, Assistant Professor of CSE Department,** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.
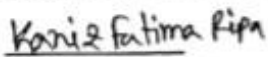
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Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

In both developing and developed countries working parents are always worry about their children because they can't give them proper time for their busy schedule. New ICT tools allow children to take advantage of new learning platforms. Now digital media and interfacing with new technologies is a part of day-to-day life for children of all ages. That's why we want to develop an app which give more relaxation about their child education. In this app we want to add basic information that's need for a pre-school children, that's why parent will be tension free about their children education. We also add word that's the way kids can learn more word. It provides all content of information, a user-friendly environment to kindergarteners. We hope this app will be very helpful for those busy parent who are busy for job and business purpose.

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CHAPTER 1
INTRODUCTION

1.0 Introduction

Smart mobile device is well known device which is growing fast and become popular day by day. Every ages of the people are depending on it. Mobile phones are becoming a part of the daily culture of almost every people like parents, children, and student. Actually these digital devices perform a new generation of technological tools that allow noticeable entry to content as well as opportunities for innovative use even by young children. This thesis base project focuses on the recent level and learning of human-computer interaction (HCI) in education sector in Bangladesh. Which is developed by an android app. This app will give basic knowledge about Bengali alphabets, words, numbers and also an audio features.

1.1 Motivation

Our main motivation of this project develop an educational for pre-school children. Right now most of the parents are busy with their job, business or house work. They can't give proper time when they back from their work. They always tense about their children's education. We want to use our technology and apply it on our education side.

- Inferiority of proper knowledge about HCI in our country.

- Still not well known how to use HCI in education sector.

- Not well utilized on HCI in our country.

- Do not know how to uses it for our education system, as a result our education system is very practically applicable.

1.3 Rationale of the Study

Actually Communication between a human user and a computer system, implying in particular to the use of input or output appliance with supporting software.

When we attached technology with education, it will be helpful for educational system improvement.

Our knowledge is limited for our bookish education system.so this knowledge can't impact in our life as much we need. In foreign countries, education is now software based. For this reason, they improved their education system day by day. If we can't have attached our education.

system with technology, we can't develop our education system like other and country will be lagging behind.

So, HCI is a major part of our education system for developing our country.

1.4 Objectives

- Changing our bookish education system.
- Creating a relation between HCI and education
- Developing free android app.
- Sharing basic idea about Bengali alphabets and numbers.
-

1.5 Expected Outcome

➢ It is an Android application by which parents can directly monitor their children education.

➢ Explore online learning styles predictors.

➢ Learning through frequent fraction and Feedback, Integrating studying style.

➢ The main goal is that stop our bookish system.

➢ Don't need any kind of data connection.

The proposed is a great solution for our kids' education system. It will help the kids get rid of the traditional mask. It will allow the kids to study with pleasure, as a result kids will be able to remembering lessons very easily.

1.6 Report Layout

Chapter 2, here we discuss the background of our project. We also add information about the allied work, the opportunity and challenges of the project and we are compared too many other applicant systems.

Chapter 3, Give the engrossments of the project. We defined the different diagram and design requirements. We also discussed about the features.

Chapter 4, we present experiment result of our project and also specified front page of this project.

Chapter 5, We implemented and testing our project and we discuss about that.

Chapter 6, discussed about conclusion and the scope for further development of the project.

CHAPTER 2
BACKGROUND

2.0 Introduction

Increasing usage of smart phones, tabs and laptops. Because of that android movement rates also increased day by day. Make our life easier, android application are used to serve us and they also do create many different types of features on their android phone by many different applications. Just beginning to learner especially our kindergarten kids will learn Bangla letters, number with audio clip. That will more interactive for them to learn anything with enjoy. Day by day they will know word with alphabets. In this chapter we try to give the overall idea of our android application "Design and Development of An Android Based E-Learning Application for Kids".

2.1 Related Works
Hate Khori (Bangla Alphabet)

Figure 2.1.1: Hate Khori (Bangla Alphabet) [6]

This app is to learn Bangla Alphabet with audio and animation. It is a being-inspire Bengali learning and reading site. The Hate Khori (Bangla Alphabet) App is especially suited for pre-school children. It offers a dashboard that shows you all options about this app.

Bornomala-Bangla Alphabet

Figure 2.1.2: Bornomala-Bangla Alphabet [7]

This is a video animated Bangla app; by this app your child learns Bangla alphabet very easily. They also add some music and audio clips for learning purpose. Which is more interactive with kids?

Bangla Bornomala(ANDROID)

Figure 2.1.3: Bangla Bornomala(ANDROID) [8]

It offers a dashboard that shows all feature about this app. Kids will learn Bornomala (Bangla letters). They also add an interesting feature that kids can draw anything they want.

Pre-School learning App

Figure 2.1.4: Pre-School Learning App [9]

The free version apps for kindergarten and toddler students. They (kids) can get knowledge about pre-school Learning ABC, Kids learning color and also pre-k learning shapes.
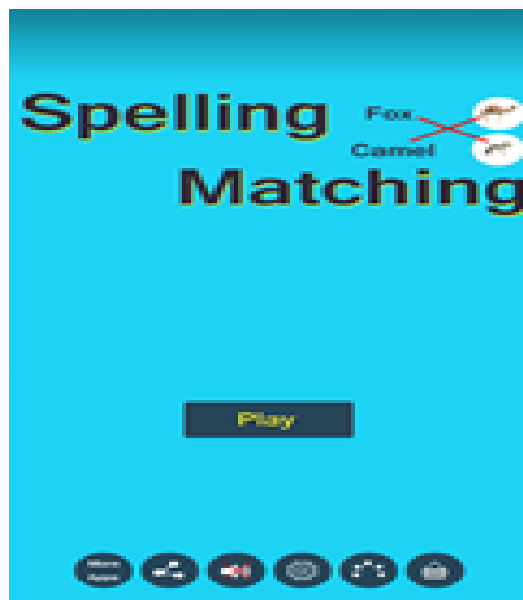
SPELLING MATCHING (ANDROID)

Figure 2.1.5: Spelling Matching (ANDROID) [10]

Most kids learning apps are only able to writing or reading. This app helps kids to select right object with word.

Features:

This app is based Bangla letters. Each letter will be shown with a simple word. They also add an interesting feature is that kids can draw anything.

- 190+ levels.

- Gives a ratting based on kid's performance.

- Match the object with spelling.

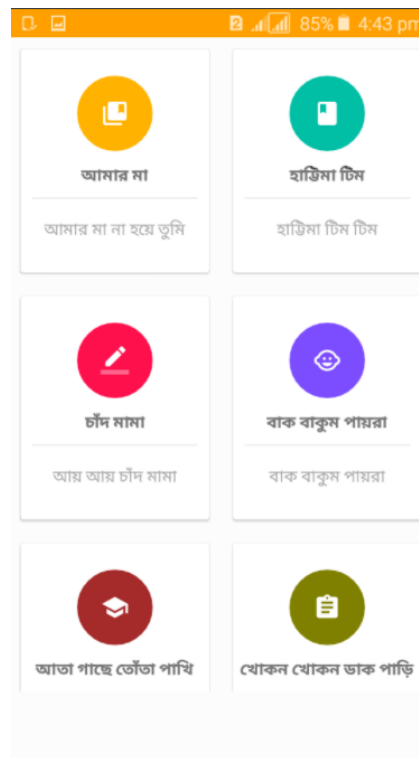## সোনামণির ছড়া (Sunamonir Chora)

Figure 2.1.6: Sunamonir Chora [11]

This application provides interesting way for the kids to learn Bangla Choras with pleasure. Kids can have a lot of fun playing with the animations and learn in the process. They add 50 rhymes.

Bangla Kids Learning App:

This app is especially design for beginner to advance level of learning, they add so many feature which is cover play to class-1 student's syllabus

Figure 2.1.7 : Bangla Kids Learning App [12]

বর্ণপরিচয় – কার্টুন রাজ্য:

This app has given you knowledge about English and Bangla Alphabets. They also add doodles for writing.

Figure 2.1.7: বর্ণপরিচয় – কার্টুন রাজ্য [13]

নূরানী কুরআন শিক্ষা:

This app is focused on Islamic learning, they provide all the basic knowledge that's need for a child.

Figure 2.1.8: Nurani Quran Shikha [14]

আমার বর্ণমালা:

This app based on only alphabets and numbers of Bangla, English and Arabic.

Figure 2.1.9: আমার বর্ণমালা [15]

2.2 Research Summary

As a parent, your child's education is ultimate consideration. Preschool age is critical for a child's improvement. In our country most of parents are busy their daily office or house work. They can't dedicate a proper time to children especially for education. Maximum kids love to playing games in available and we want to use there that site and make an educational android app. This research focused on looking into, how to help self- learning of current day pre-school kids through the development of an android application individual the special features.

2.3 Scope of the problem

Different app is designed or featured very different way. Scope of problem are given below

- Some app doesn't add any audio clip.
- Few applications are online base.
- Don't add counting of number system.
- Add doodle for writing.

2.4 Challenges

Developing any project, we have to face some challenges. Similarly, in this project we face some accusations. At first, we are trying to think out this application with user encouragement resource so we have to complete this application with full fill of user's indictments. The challenges requirements which we mentioned below.

· Integrating education style.

· Acceptable for pre-school student.

· Beginning to learn language.

· Free versions for all.

· Training kids with e-learning system.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.0 Requirement Collection and Analysis

This android application is basically for android smart phone user. For smooth work this application requires very simple configuration.

Hardware configuration required:

* Android Smartphone for both child and parent.

Software configuration required:

* OS: Android.

* Tool: android-studio-ide.

* DB: Firebase.

* Server: Firebase.

It also provides the following requirements that is required:

* Data accuracy
* Efficiency of working
* Real time location data show
* User friendly
* Effective

3.1 Features:

* Show Alphabets
* Show picture with word.
* Add audio file.
* Show numbers.
* Add photo with counting number.
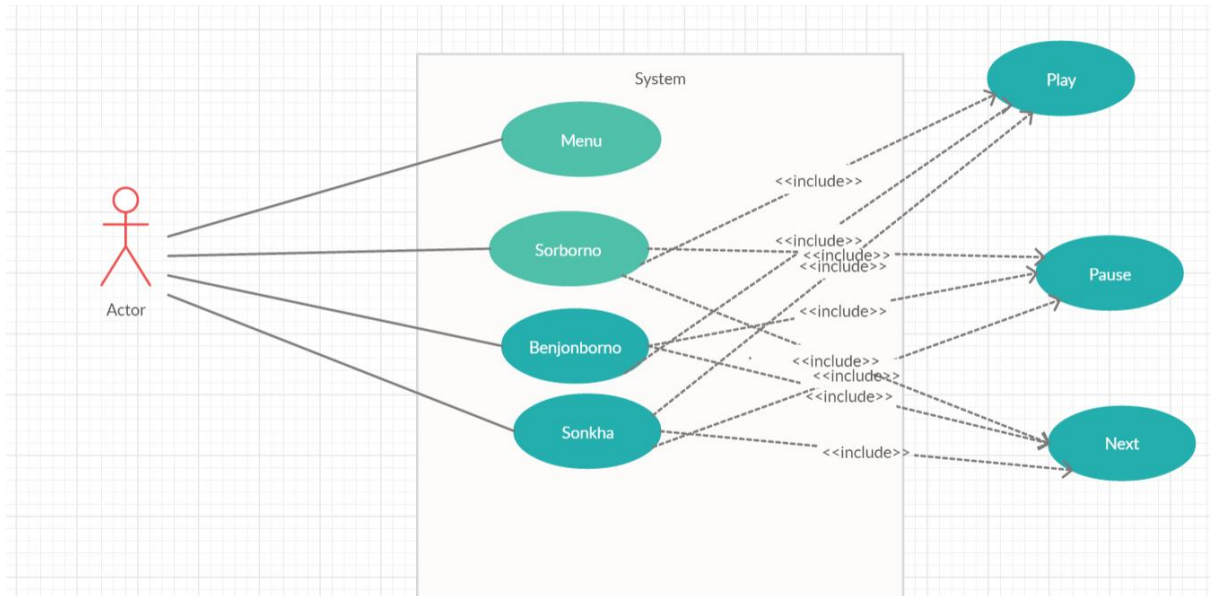
3.2 Use Case Modeling and Description

Figure 3.2: Use Case Model

In this Use Case Model there are one actors. That is Child. Who will be our user actor. Here we can see when user go in main side, there will be three options. First one is Sorborno when user go for sorborno user will get alphabets with.

The child clicks Benjonborno button and go for letter we also add word and audio in every alphabet. If child want to hear sound press play button or if want to stop audio press pause button. We also add another button which is number. Go for next number or alphabet press next button

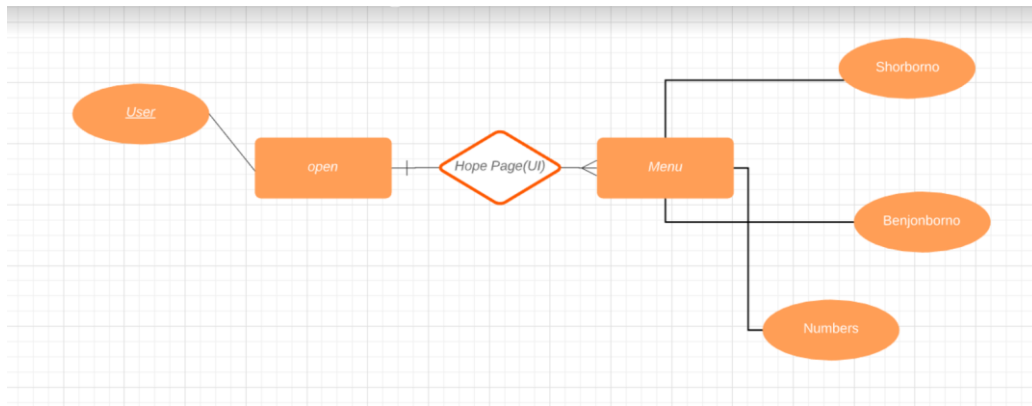## 3.3 Entity Relationship Diagram and Description

Figure 3.3: ER Diagram

In our project, only one entity is working in total application which is user (Child). The child open the app go to menu. There will be 3 options and child select one of them.
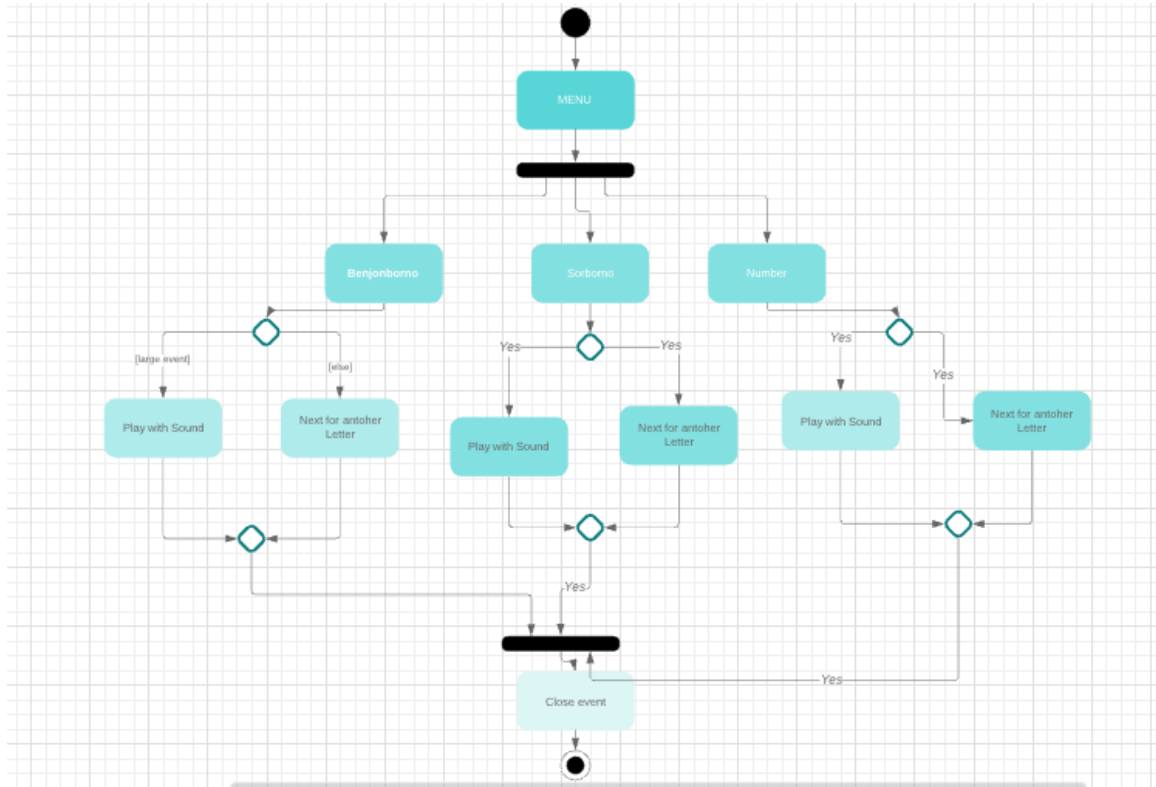
3.4 Activity Diagram and Description

Figure 3.5: Activity diagram of the project

In this activity diagram we see that when we go to menu option we can go next three features. If we click benjonborno we can see our alphabets with word and sound. Again if kids want to learn Sorborno they will go that feature follow same process same as other feature. When they visit to next alphabets they have to click next button. Other feature will be worked same as last two features.

3.5 Sequence Diagram and description

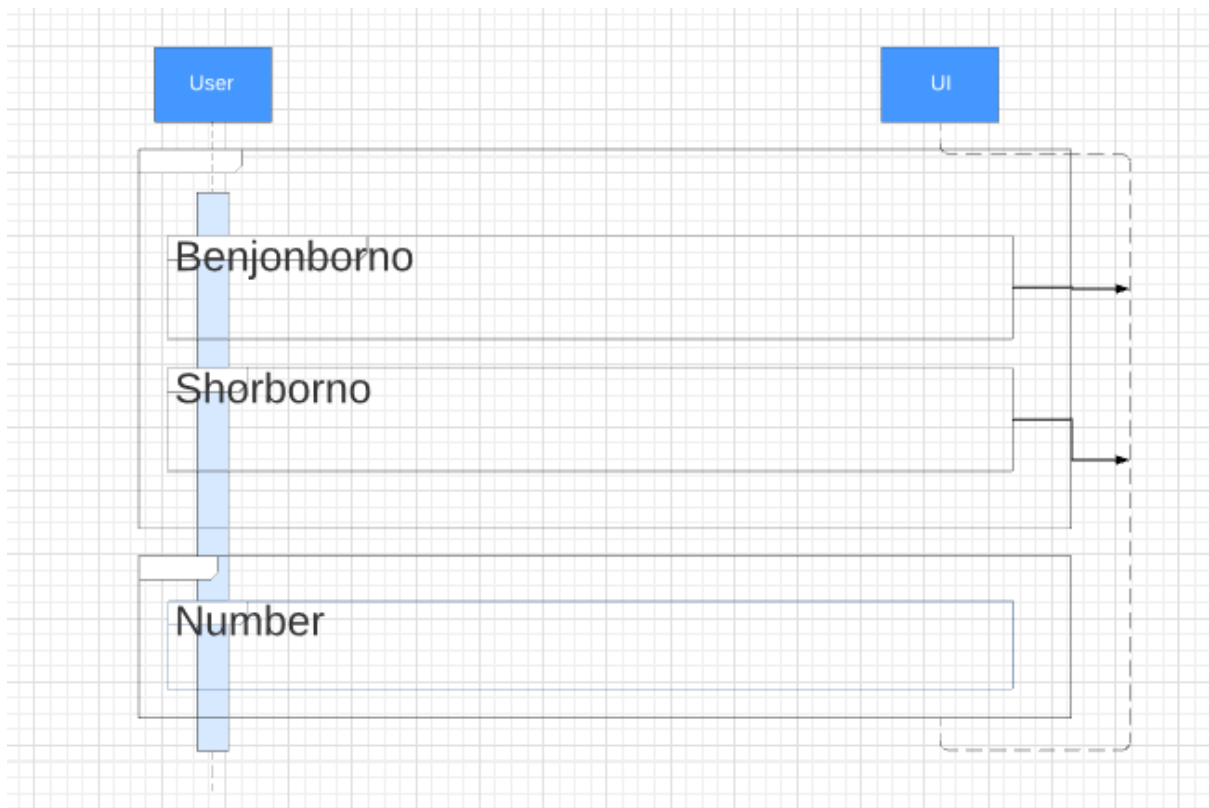Figure 3.6: Sequence Diagram

We have only one user who are kids. When they use this app they will follow this sequence diagram.
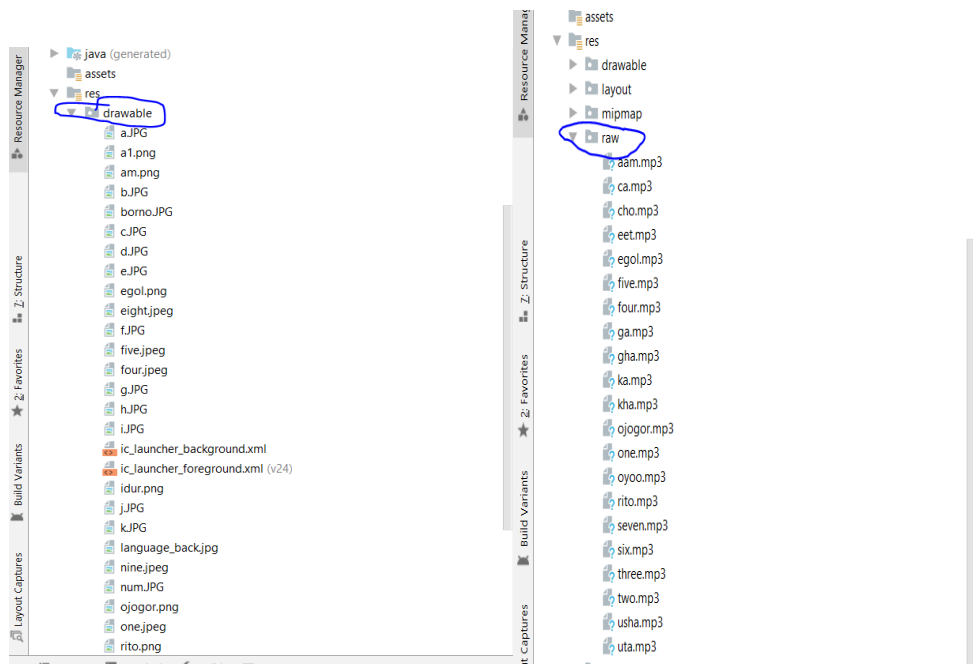
3.5: Back End Design and Description

Figure 3.5: Back End Design

In this project for picture we use draw able file, we add image by calling this file and on the other hand for audio we use raw file, we call the file using add button.

CHAPTER 4

DESIGN SPECIFICATION

4.0: Introduction

Technology plays an important role in learning because it promotes active learning. Educational 'technologists' developed and studied uses of mobile for learning in general and specifically for basic education. when discuss about technology base learning system internet is important. Then it became costly to or not user friendly. We want to give a good environment it's important for learning anything. For that when user use this app they need not use any internet connection.

4.1: Front Page or UI design:

4.1.1: Starting Page

Our starting page is presenting menu or options of this application. There are three options which will go to three different categories.

Figure 4.1.1: starting Page of this application

4.1.2: Bangla Alphabet (Sworborno)

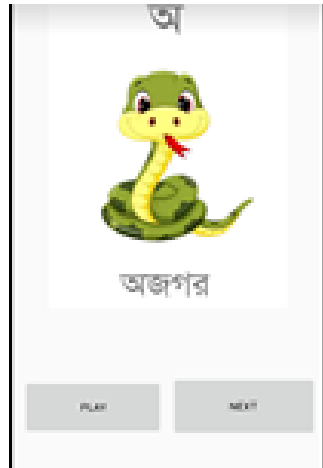In Bangla alphabet there are 11 words in sworborno . Here is the word pages

.

Figure 4.1.2: Bangla Alphabets(Swarborno) with word and sound

4.1.3: Bangla Alphabet (Banjonborno)

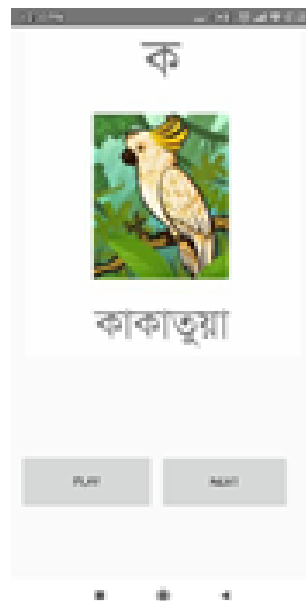Here is the UI design of Bangla alphabet there are 39 words in Banjonborno. Here are the word pages.

Figure 4.1.3: Bangla Alphabets(Banjonborno) with word and sound

4.1.4: Bangla Number

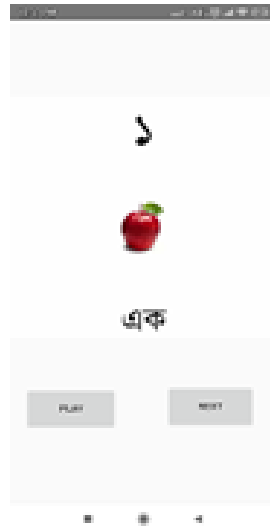Kindergarten student can learn Bengali number system with quantity.

Figure 4.1.4: Bangla number with quantity

4.2: Descriptive Analysis:

In this android development application, we need to show the all Bengali alphabets and number with word. We add word with every alphabet. There are three option "PLAY", "PAUSE" and "NEXT". By PLAY button kids can hear the audio sound with word and alphabet. If kids want to practice by herself/himself, they won't click PLAY button. We use PAUSE button for they can pause audio clip when they want to practice by themselves. They also can click NEXT button. By this button they will go to next page. User will follow this process for every menu.

We want to make our application easier for kids, also add audio for learning alphabets and word. Because it's an important part to have an idea about sound. If they don't know about sound they can't have pronounced rightly for appropriate word.

The parent and child have different menu. Here is the menu list design for parent and child.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.0 Requirements for Implementation

As the implementation of our project we need some essential requirements. Without those things we cannot run our utilization as we want to run for achieving our target. The implementation process will start after fill those requirements which we mentioned below.

- Android Mobile for Child
- Install the application in Child's mobile or Parent's mobile

If it is implemented, then children will be able to learn to study very happily. As a result, children will also be interested in studying in the future, leaving out the memorized method.
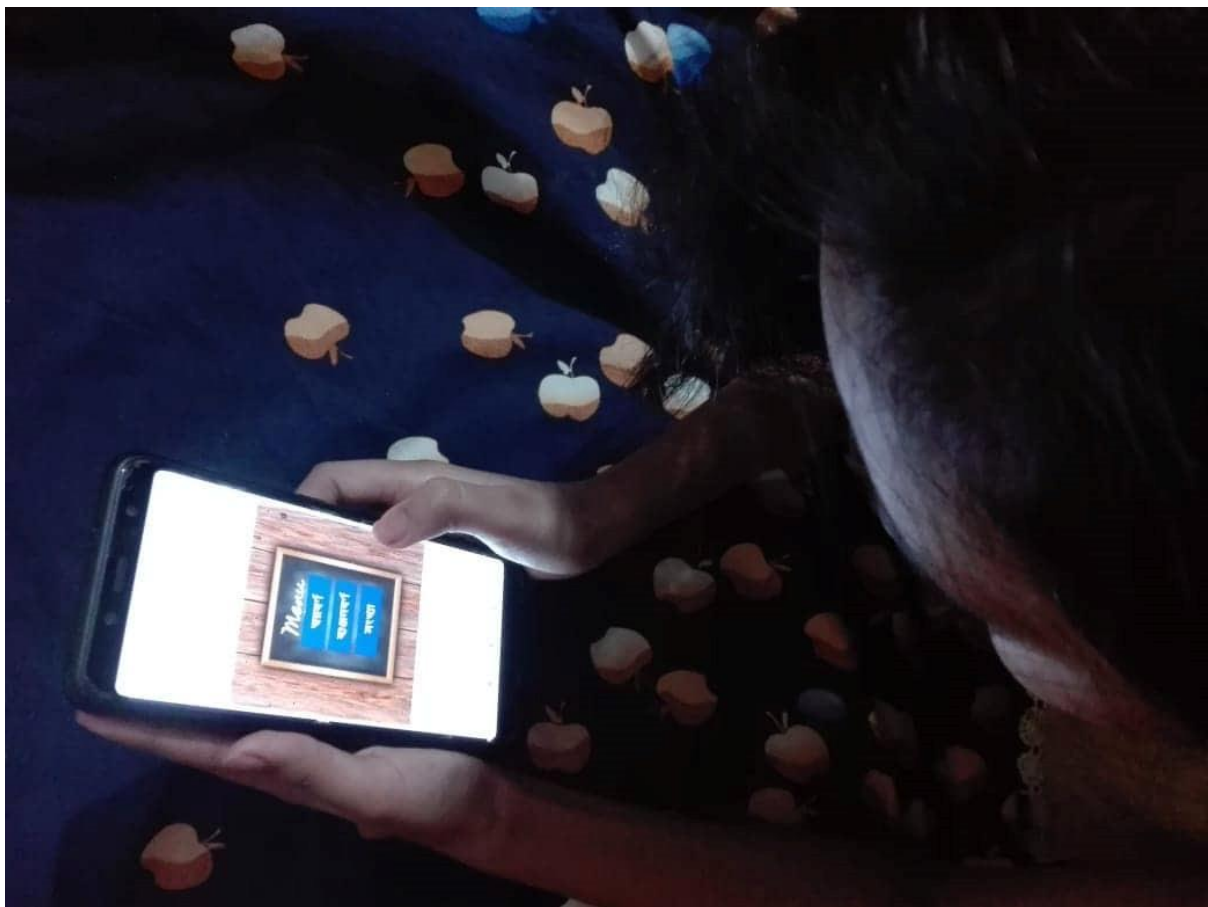

Figure 5.0: Applied on Child

5.1 Testing Implementation

This is the process that can consider as in where an application tester or it can be the builder of that application will be able to check many cases for the completion of the application and specification. But maybe there have the limitation in the application at the initial stage or in next.

Table Name: Tesing Result

Test case	Test input	Expected outcome	Obtained outcome	Passed/ Failed	Testing Period
Install	Installed by valid mobile	Successfully Installed	Successfully Installed	Passed	02-10-2019
Install	Installed by invalid mobile	Re-enter warning for failure	Installed denied	Failed	02-10-2019
Install	Installed with empty field	Re-enter warning for failure	Installed denied	Failed	02-10-2019
Install	Installed by valid mobile	Successfully Installed	Successfully Installed	Passed	03-10-2019
Install	Installed by invalid mobile	Re-enter warning for failure	Installed denied	Failed	03-10-2019
Install	Installed with virus	Successfully Installed	Installed denied	Passed	08-10-2019
Install	Installed by valid mobile	Successfully Installed	Successfully Installed	Passed	09-10-2019
Install	Installed by valid mobile	Successfully Installed	Successfully Installed	Passed	24-07-2019

Figure 5.1 : Testing Table

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.0 Discussion and Conclusion

Finally, our work has been completed. It was the rise of time to create an "E-LEARNING APPLICATION FOR KIDS" in our University. This project is especially made for every busy parent who love their child and care them but they haven't proper time to give their children. The testing some piece of this was to create a simple to use framework that limits the work for the client.

6.1 Future work and Further Development:

We have plans to adding more facilities to this application. This system has a lot of future scope to make it more users friendly. Firstly, we will add more feature and also add doodle for them. Now the app designed for children only, it can be adapted for later adult education. Books of the next class can be interacted with this app, as a result, they will be able to remember difficult reading very easily, then use them properly in the workplace.

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