North South University

Department of Electrical & Computer Engineering

Project Proposal

Group No: 01

Project Name: AR Schoolbook

Course No: CSE 499A, **Sec:** 18, **Semester:** Spring 2021

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Git Repository: https://github.com/NSU-SP21-CSE499-18/Group-01

Date Submitted: 04/03/2021

INTRODUCTION

AR Schoolbook is a project that aims to provide an Augmented Reality android app for high school books in Bangladesh according to NCTB (National Curriculum and Textbook Board). The initial prototype will only cover one book in particular- class 7, Science book. The aim is to create a fun and modern learning experience for students and also help teachers better prepare their lessons. We wish to combine “fun smartphones” with “boring books” to establish a middle ground where smartphones are not just a source of time waste and books are fun.

PROPOSED FEATURES

(1) Each figure and experiment included in the book will be used as a marker. Pointing the camera at these markers will start the AR view/interaction.

(2) AR experiences will be of two types,

(2.1) Biology figures-

A sizable 3D model of the figure will appear on screen and the user can touch different parts from the figure to highlight.

(2.2) Chemistry/Physics experiments-

3D models of the equipment will appear and by pressing a proceed/back button steps of the experiment will play out in reality.

(3) A user(Teacher) can share his/her live AR interactions with other multiple users nearby without internet and also remote users through the internet. In this case only the user sharing the screen can interact with the AR setting.

(4) The user who is sharing can grant/revoke other users to control the AR setting (e.g- point out different parts in case of biology figures).

TOOLS

1. Framework

Android Studio, Kotlin.

We might also require to use Unity for building the AR features but this is to be decided upon further study.

2. Database

For general purpose data of the users Firebase Realtime database will be used. Firebase functions might be used for setting up database triggers/https end points as seen fit.

We might also require to use a special database for storing the AR 3D objects, marker images which are to be decided upon further study.

3. Third Party Support

- Google ARCore SDK for Android (Kotlin)
- Sceneform
- Unity, ARCore Foundation or ARCore SDK for Unity
- Firebase Realtime Database SDK

The third party support listed here is not finalized and is going to be updated upon further study.

SOCIAL BENEFITS

(1) Make studying more interactive and interesting so students don't feel bored reading school books.

(2) An immersive AR experience for students to help develop a firm understanding of the basic study materials taught in high-school and create a different perspective of the traditional method of studying.

(3) Change the conception of "phones are only meant for playing games" by turning time wasting smartphones into a source of productivity for children.

(4) Help teachers explain topics better with reactive visual components instead of just showing static 2D pictures provided in textbooks.

(5) Schools that do not have enough equipment to carry out a scientific experiment can use our app to get the students a visual understanding of the experiment.

PLANS FOR MONETISATION

We will mainly follow two types of monetization strategy,

(1) **Freemium:** The freemium strategy is considered to be the most effective way to monetize apps. The application will be provided to the users as a freemium version, and it will be completely free to use. No payment system integration from the user will be required to use the application. There will be ads in the freemium version, and users can migrate to the premium plan anytime.

(2) **Premium:** This is the most standard method to monetize applications. The application will provide a premium plan or version which will be ultimately ad-free and may offer more features. The premium plan is a one-time purchase, and the users will not be required to pay in their lifetime to enjoy the premium plan.