**Project Synopsis**

**On**

**“Augmented Reality Based Software For Education.”**

**By -**

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Problem Definition :

Lab experiments and demonstration are undoubtedly one of the most effective practical options for bringing challenging concepts to reality.

Due to budget limitations, available equipments or safety hazards, however, many schools limit the scope of practical demonstrations that students are exposed to.

Classroom learning as we know it is undergoing changes at an unprecedented rate. Technology has made its way to the classroom, increasing the engaging and interactive elements that many students are benefitting from.

Students today are already familiar with various technologies, which is why computerized tools and apps make sense in a classroom setting.

Augmented and virtual reality are seeing more prominent utilization in classroom and educational settings. One of simplest AR uses in education is its introduction in the traditional classrooms.

Supporting textbook materials with AR examples adds another dimension to the learning process which will become a hybrid of the traditional approach and innovation practical illustrations of complicated concepts.

Augmented reality can make the educational experience fun for a young and restless group of people who have gotten used to visual simulation and interactivity.

Apps and AR resources are already being used in the classrooms, and chances are that the scope of application will expand even further as more AR developers take on the task.

**INTRODUCTION :**

Our Augmented Reality based software which can be used by students with their traditional textbooks. This software will help students to visualize the three dimensional representation of the entity they are learning about.

This Software will allow students to great extend to understand the concepts easily and way better than just seeing the 2d pictorial format of the subject.

Basic requirement of the software will be a Android phone or tablet on which our software will run and if user wants to enhance the experience then a VR glasses can also be used.

This Software can be used from School/High School to Colleges.

**DESIGN :**

**User**

**Android Phone with Camera or VR**

Send the target data

Request for the 3d object

**3d Object database**

Send the 3d object data

Drawing the 3d object

**Data Flow Diagram**

**MODULES:**

1. Graphical User Interface :

In this AR based project, GUI component contains a Menu Screen where different GUI Buttons are present to enter a particular section of the application.

2. AR Module :

This Module includes Vuforia and Camera to give user the experience of Augmented Reality which is the main feature of this application.

3. C-sharp Scripts :

In the back-end all the activities are handled by C-sharp scripts including GUI components to 3d models. C# can access code written in any .NET compliant language and can also inherit the classes written in these languages.

4. 3d Models :

3d models are used with AR component of this application, using the AR technology and Camera component in this application it is possible to present an Augmented 3d model through the camera in-front of the user.

**APPLICATION:**

1. In the Education field :

Its not easy for the students to imagine a 3d object i.e Internal Organs, Mechanical Motors or Any Computer Circuits or Equipments when it comes to Pictorial presentation of those object, using this application student can get an 3d augmented model in front of them from all the 3 dimensions to clear their concepts and imagination easily.

2. In Engineering field :

This application allows to present 3d models so according to engineering aspects it’s great to have such application which will show their Mechanical parts and other such Engineering components using AR.

3. Medical field :

This application even shows Augmented Models of Internal Organs and Anatomy Models which helps to visualize them and understand the in 3 dimensions .

**Future Scope:**

This Application, that enrich the standard methods of imparting education are always in demand, now more than ever. A big disadvantage of using the traditional Instructor-led classroom is its inability to address individual learner needs, leading to a lack of attention and interest among students.

This is where this application comes with [Augmented Reality](https://kitaboo.com/kitaboo-ar/) technology which provides visuals tolearners that can enrich the learning experience and assist the educators in creating content that links visuals to reality. For educators, application like this offer a method of delivering content that makes learning interesting and easier to understand.

**ADVANTAGES :**

* The AR system is highly interactive in nature and operates simultaneously with real time environment.
* It reduces line between real world and virtual world.
* It enhances perceptions and interactions with the real world.
* It can be applied to part of practicals as it makes things memorable and eye catching.

**DISADVANTAGES :**

* A need of extra wearable device :

 Since users may want to feel more authenticity in AR, wearable devices such as Google Glass and Apple’s iWatch may be provided for users in order to offer authentic experiences in more convenient yet expansive way.

* Technical Failure :

Technical failures like camera not working, damaged screen or Low battery of mobile phone may cause trouble while using the application.