Introduction:

Science education can be challenging due to abstract concepts and high cognitive demands, making it difficult for many students, including those with specific learning difficulties. Visual aids are effective in enhancing learning and comprehension, but new technologies like Augmented Reality (AR) offer great potential to revolutionize science education. This paper aims to explore the benefits of using AR technology to enhance students' comprehension of abstract concepts and improve their attitudes towards the subject.

(What is AR?)

AR stands for Augmented Reality. It is a technology that superimposes computer-generated images, videos, or 3D models onto the real world, creating an interactive experience for the user.

(What is does "Augmented" mean in Augmented Reality?)

The word "augmented" generally means to enhance or supplement something, while in the context of Augmented Reality (AR), it refers to the technology that superimposes computer-generated images, sounds, or other sensory elements onto the real world, thus enhancing or supplementing the user's perception of reality. In other words, AR technology adds a layer of virtual content to the real world, allowing users to experience an enhanced version of reality.

Purpose Of the Study:

To enhance students' comprehension of abstract concepts and improve their attitudes towards learning science.

Scope and Limitations:

develop a Mobile Augmented Reality Application for learning science that will help students to be more engaging on science learning and help them to easily understand science concepts

Significance of the Study:

- Students will benefit from this application by using it for learning science.

- Future researchers can benefit from the system developed in this study as it provides not only assistance to students but also serves as a valuable source of ideas and inspiration for those interested in pursuing similar research.

SDLC:

- Agile methodology is an approach to software development that values customer satisfaction and responds to changing requirements.

- Requirements: The focus is on gathering and documenting requirements.

- Design: The goal is to create a basic design that can be iteratively improved upon as development proceeds.

- Development: The actual coding and building of the application takes place, with an emphasis on frequent testing and integration of code changes.

- Testing: Testing is integrated into the development process, with a focus on identifying and addressing defects as early as possible.

- Deployment: The goal is to release the product to users as quickly as possible, with ongoing feedback and monitoring to identify and address any issues.

- Review: After deployment, the researcher conducts a review of the project to identify areas for improvement and incorporate lessons learned into future projects.

(Why I used this Agile methodology?)

Agile methodology is a suitable approach for mobile app development because it offers flexibility, iterative development, and continuous improvement. These factors can help developers to deliver high-quality mobile apps that meet the needs of users and stakeholders.

(What do you mean with "Iterative Development"?)

Iterative development is a key practice in Agile. It breaks down software development into a series of iterative cycles, or sprints. Each cycle involves planning, design, development, and testing, and results in a working product increment. Feedback is used to make improvements and adaptations to the product. The aim is to deliver a high-quality product that meets customer needs, while allowing for flexibility and adaptability throughout the process.

(What do you mean with "flexibility" in Agile?)

Flexibility means the ability to adapt and respond to change. It involves being open to new requirements, feedback, and shifting priorities throughout the development process.

Theoretical Framework:

- TAM theory stands for Technology Acceptance Model theory, which is a widely accepted model for understanding how users accept and use new technology. It proposes that a user's intention to use a new technology is determined by their perceived usefulness and perceived ease of use.

- Perceived usefulness refers to how much a user believes the technology will help them in their work or daily life.

- Meanwhile, perceived ease of use refers to how easy the technology is to use.

Proposed Framework:

- A proposed framework refers to a plan or structure that has been suggested or proposed to address a specific problem or issue.

Use Case Diagram:

- A use case diagram is a type of Unified Modeling Language (UML) diagram used to visualize the different ways that a system can be used. It describes the functionality provided by the system as well as the actors that interact with the system.

Sequence Diagram:

- A sequence diagram is a type of interaction diagram in Unified Modeling Language (UML) that shows the flow of messages exchanged between objects or components of a system in a particular scenario or use case. It visualizes how objects interact with each other and the order in which those interactions occur.

Activity Diagram:

- An activity diagram is a visual representation of the workflows, processes, and activities within a system. It shows the sequence of activities and how these activities relate to each other.

Data-flow Diagram:

- A data flow diagram (DFD) is a graphical representation of the flow of data through a system or process. It shows how data enters and exits a system, how it is stored and processed within the system, and how it is transformed as it moves through various stages of the process.

Context Diagram:

- A context diagram is a high-level visual representation of a system or a process that shows its external and internal entities and their interactions.