A Project Report On
"Little Champ"

Prepared by

D22CE161 – Dhruv Desai

D22CE163 – Mohit Gajjar

Under the guidance of

Prof. Martin Parmar

Submitted to

Charotar University of Science & Technology

Degree of Bachelor of Technology

in Computer Engineering

CE255 : Software Group Project-II

of 4th Semester of B.Tech

Submitted at

CHARUSAT

CHAROTAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

U. & P. U PATEL DEPARTMENT OF COMPUTER ENGINEERING

Faculty of Technology & Engineering, CHARUSAT

Chandubhai S. Patel Institute of Technology

At: Changa, Dist: Anand – 388421

December 2022 To April 2023

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for the Partial Fulfillment of the Requirements for the
Degree of Bachelor of Technology (B.Tech.)
in U & P U. Patel Department of Computer Engineering (CE)
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Submitted at

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Accredited with Grade A by NAAC

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Chandubhai S Patel Institute of Technology

U & P U. PATEL DEPARTMENT OF COMPUTER ENGINEERING
Chandubhai S. Patel Institute of Technology (CSPIT)
Faculty of Technology & Engineering (FTE), CHARUSAT
At: Changa, Dist: Anand, Pin: 388421.
December 2022 To April 2023

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CERTIFICATE

This is to certify that the report entitled "**Little Champ**" is a bonafide work carried out by **Dhruv Desai (D22CE161),Mohit Gajjar(D22CE163)** under the guidance and supervision of **Prof. Martin Parmar** for the subject **Software Group Project - II (CE255)** of 4th Semester of Bachelor of Technology in **Computer Engineering** at Faculty of Technology & Engineering (C.S.P.I.T.) – CHARUSAT, Gujarat.

To the best of my knowledge and belief, this work embodies the work of candidate himself, has duly been completed, and fulfills the requirement of the ordinance relating to the B.Tech. Degree of the University and is up to the standard in respect of content, presentation and language for being referred to the examiner.

Under the supervision of,

Prof. Martin Parmar
Associate Professor
U. & P. U Patel Dept. of Computer Engg.
C.S.P.I.T., CHARUSAT-Changa.

Dr. Ritesh Patel
Head,
U. & P. U Patel Dept. of Computer Engg.
C.S.P.I.T., CHARUSAT-Changa.

Chandubhai S Patel Institute of Technology (C.S.P.I.T.)

Faculty of Technology & Engineering, CHARUSAT

At: Changa, Ta. Petlad, Dist. Anand, PIN: 388 421. Gujarat

DECLARATION BY THE CANDIDATES

We hereby declare that the project report entitled "**Little Champ**" submitted by us to Chandubhai S. Patel Institute of Technology, Changa in partial fulfilment of the requirements for the award of the degree of **B.Tech Computer Engineering**, from U & P U. Patel Department of Computer Engineering, CSPIT, FTE, is a record of bonafide CE255 Software Group Project- II carried out by us under the guidance of **Prof. Martin Parmar**. We further declare that the work carried out and documented in this project report has not been submitted anywhere else either in part or in full and it is the original work, for the award of any other degree or diploma in this institute or any other institute or university.

(Dhruv Desai –D22CE161,Mohit Gajjar –D22CE163)

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Prof. Martin Parmar
Associate Professor
U & P U. Patel Department of Computer Engineering,
Chandubhai S Patel Institute of Technology (CSPIT)
Faculty of Technology (FTE)
Charotar University of Science and Technology (CHARUSAT) - Changa.

1. Introduction

1.1 Project Summary

We are making desktop-based Application in which we will provide another way of teaching through augmented reality and virtual reality to a primary school child for Mathematics.

1.2 Project Purpose

In the current education system, teachers prefer the Blackboard system to explain the concepts and teach to the children, in which some children understand the concept and some children don't understand the concept. So, we make sure that all these loopholes will be fulfilled using this technology and our application.

1.3 Objective

AR and VR Technology has been greatly used in the gaming field. Augmented reality in the effect of the using technology to super exact digital components. We are making a VR Application, which can augment learning outcomes of primary school children.

1.4 Project Scope

We will provide a Mathematical operation through virtual reality concepts. Which add the following operations- Addition, Subtraction, Multiplication, Division
And Multiplication Tables.

1.0 Project Management

1.1 Project Planning

1.1.1 Project Development Approach and Justification

The agile development methodology is well-suited for the Little Champ project for the following reasons:

- Flexibility: It allows for changes to be made to the project requirements, features, and design as needed, based on feedback and changing circumstances.
- Collaboration: It encourages communication, transparency, and continuous feedback, ensuring that everyone is working towards the same goal.
- Rapid iterations: This allows for early detection of issues and bugs, which can be addressed quickly, resulting in a more stable and reliable final product.

Overall, the agile development methodology is a suitable approach for the Little Champ, as it can help the project team to adapt to changing requirements, ensure customer satisfaction,

1.1.2 Group Dependencies

In the case of the Little Champ project, some of the group dependencies can include:

- Hardware and software integration: The project involves hardware components, such as the android phone and VR headset & its controller , The team members responsible for hardware and software development need to collaborate to ensure that the components work together seamlessly.
- Testing and validation: The team members responsible for testing and validation need to collaborate with the hardware and software development teams to ensure that the project meets the required standards and specifications.
- Documentation and communication: The team members responsible for documentation and communication need to collaborate with all the other team members to ensure that the project's progress and requirements are documented and communicated effectively.
- Project management: The project manager needs to collaborate with all the team members to ensure that the project is progressing as per the plan, and any issues or risks are identified and addressed in a timely manner.

2.0 System Requirements Study

2.1 User Characteristics (Type of users who is dealing with the app)

The Little Champ is designed to be used by a variety of users, including:

- Teachers: Teachers can use the App to learn children alphabets. She can teach them one by one character, as well as ask them, also can ask like what is this? And after she can be called by app sound that what is this object, also take quiz.
- Parents: Parents can use the App to learn their own students at house. Their child don't need to need any book or mother time for learning as well as he/she can able to change its language so it has two benefits.
- Children: Children can use this app by their own self also and can study by their own willingness. We know nowadays all parents have smartphones and they gave to her child so they can also use them. There are no any major difficulties about to start the app.

2.2 Hardware and Software Requirements (minimum requirements to run your system)

Hardware requirements:

- Any Android Phone(minimum 2GB RAM required)
- VR headset with controller

Software requirements:

- Application

Additional requirements:

- Controller is mandatory only headset is not working.

2.3 Assumptions and Dependencies

Assumptions:

- The Android phones will have sufficient Ram to support the Little Champ app.
- The Android phones will have sufficient Storage to run the Little Champ smoothly.
- The user will have basic knowledge about how to run any apps and how to operate them.
- The user will have basic knowledge about how to wear VR headset properly.
- The user will have basic knowledge about how to fit android phones in VR headset and be take care about perfect position of phone in there.

Dependencies:

- The availability and compatibility of hardware components, such as the android phones and VR Headset will depend on the specific model and company.
- The performance and reliability of the application will depend on the quality and compatibility of the hardware and software components used.

3.0 System Analysis

3.1 Study of Current System

In general, at current days teachers teaches all these things on blackboard. Student get bored at sometimes because of style of teacher to teach And sometimes teachers have not interested in teaching so all these problem occurs in real life's nowadays. If we see at some point of view then parents don't give their phones to child for learning these because they are starting another entertainment in the phones that's why.

3.2 Problem and Weaknesses of Current System

As we above mentioned there are certain problem like parents have no time for their children, teaching method like this all method occurs.

3.3 Requirements of New System

3.3.1 Functional Requirements

- Access Control: The system should provide a means to control access to the handle apps by their own ways.
- Sound Mechanism: We are able to turn on and turn off sound of background music as well as object sound.
- Change Alphabets: The application is providing facility that we can change alphabets simultaneously as well as any random which ever we want to jump over directly.
- Change method of Caps locking: The application is providing facility that we can change alphabets from small to capital as well as capital to small.

3.3.2 Non Functional Requirements

- Reliability: The system should be reliable and operate consistently, without unexpected failures or downtime.
- Usability: The system should be easy to use and understand, with a user-friendly interface.
- Compatibility: The system should be compatible with existing hardware and software, and any necessary integrations should be seamless.
- Scalability: The system should be able to accommodate future growth and changes in the organization's needs, including the ability to add more users or extend functionality.

3.4 Feasibility Study

3.4.1 Does the system contribute to the overall objectives of the organization?

Yes it is contributing overall objective of Organization by providing all these services

3.4.2 Can the system be implemented using the current technology and within the given cost and schedule constraints?

Yes this system is very cost efficient and very sustainable and low maintenance and can be made with current technologies

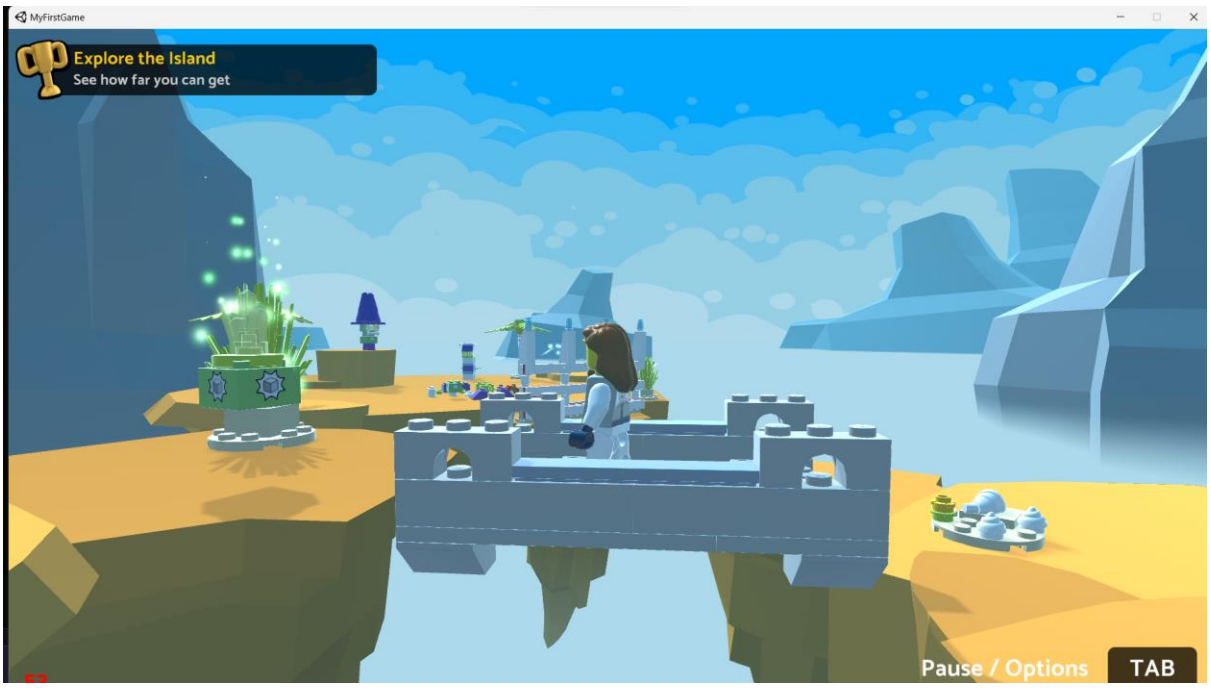
3.4.3 Can the system be integrated with other system which are already in place?

Yes it can be integrate with the already placed system because it is using the general technology which are essential for any hardware systems and compatible in any android device and in any VR headset.

4.0System Design

4.1 Input/output and Interface Design

4.1.1 Samples Of Interface:-



4.1.2 Access Control and Security

For security purpose there is no need of any high security because this is an open source app and in that no any private data is there so we have no worries about privacy and security.

5.0 Conclusion and Discussion

5.1 Self-Analysis of Project Viabilities

The project is viable and has the potential to be implemented in various settings. The use of model, animations and VR technology make it convenient and user-friendly. The project is also cost-effective and can be easily customized to fit specific needs.

5.2 Problem Encountered and Possible Solutions

During the development of the project, some technical challenges were encountered, such as compatibility issues with hardware and software. However, these issues were resolved through careful research and testing. In the future, continuous monitoring and maintenance will be necessary to ensure the software's effectiveness.

5.3 Summary of Project work

The project involved the development of a Little Champ that uses VR technology and Animations to provide joy. The project scope included requirements gathering, system design, development, testing, and deployment. The project was successfully completed, meeting all of the functional and non-functional requirements.

In future we want to include numbering system as well as in one project. We already started working on it and also want to add addition, subtraction, multiplication. Division. We want to make in both 3D and VR.

6.0 Limitation and Future Enhancement

The Little Champ has some limitations, we can’t touch objects and we can’t move left and right side because unity (platform which I use for making this app) not supported this features in this cheap VR controller. We made this app to keep in mind that we made for children so we kept cheap price of headset as much as we can.

We will working on another module that is based on mathematical numbers and operation learning. In that we will teaching numbers and mathematical operations like addition, subtraction, multiplication, division like all these. We already working