FAMU/FSU College of Engineering

Department of Electrical and Computer Engineering

Preliminary Detailed Design

Team 304: FPL ATS Training Application

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Introduction

The main objective is to design an application that will virtually train Florida Power & Light (FPL) employees on maintenance and troubleshooting procedures for the Automatic Transformer Switch (ATS). With the main motivator of this project being the COVID-19 pandemic, the application must train employees in a virtual manner and be compatible with an iPad as specified by Florida Power & Light. In addition, the application itself must be user-friendly and interactive. In order to thoroughly and properly conduct the training, four key goals must be completed as follows: inform the user of ATS hazards, educate the user on the ATS and its components and functions, allow the user to interact with and request information on the ATS, and assess the user's knowledge on the information taught.

Selected Concept

In order to implement the necessary design requirements, many concepts were generated and considered. After quantitative analysis of the generated concepts, the following selections were made and serve as the selected design concept:

- Production Method: Unity
- IDE: JetBrains Rider
- 3D Modeling Software: Autodesk Maya
- Delivery Method: iPad Application
- Screen Design: Home/Menu Based
- User Assessments: Multiple Choice & Scenario Based

Preliminary Design

<u>Software Design Flowcharts</u>

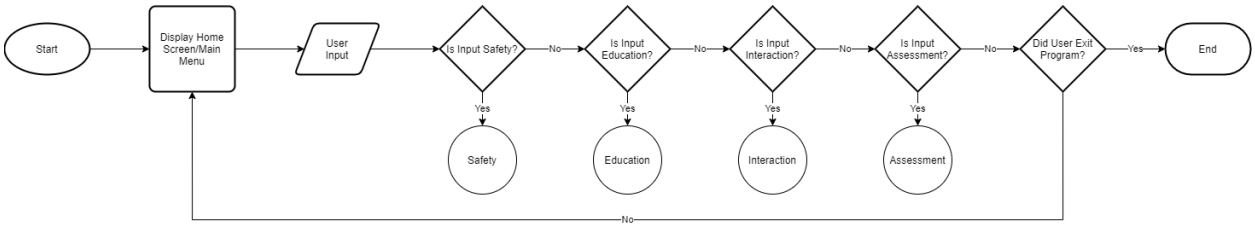

Fig. 1: Application Home Screen/Menu

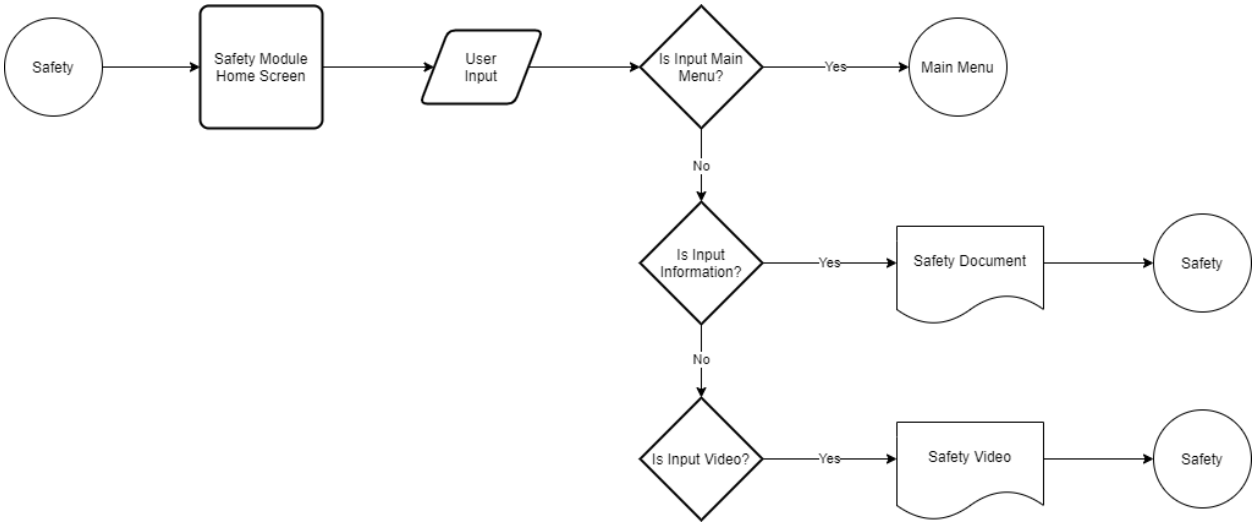

Fig. 2: Safety Module

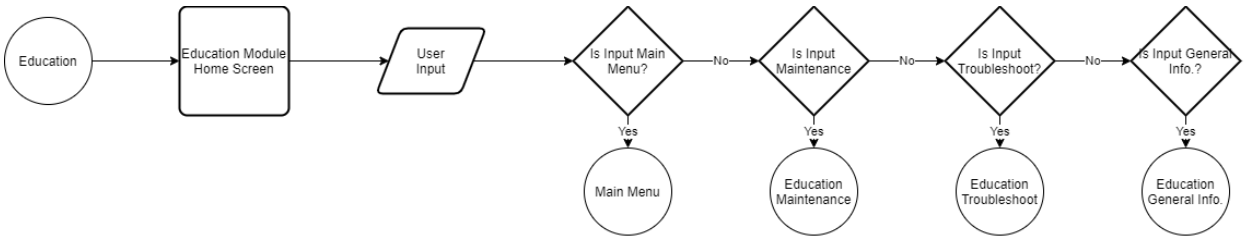

Fig. 3: Education Module High Level View

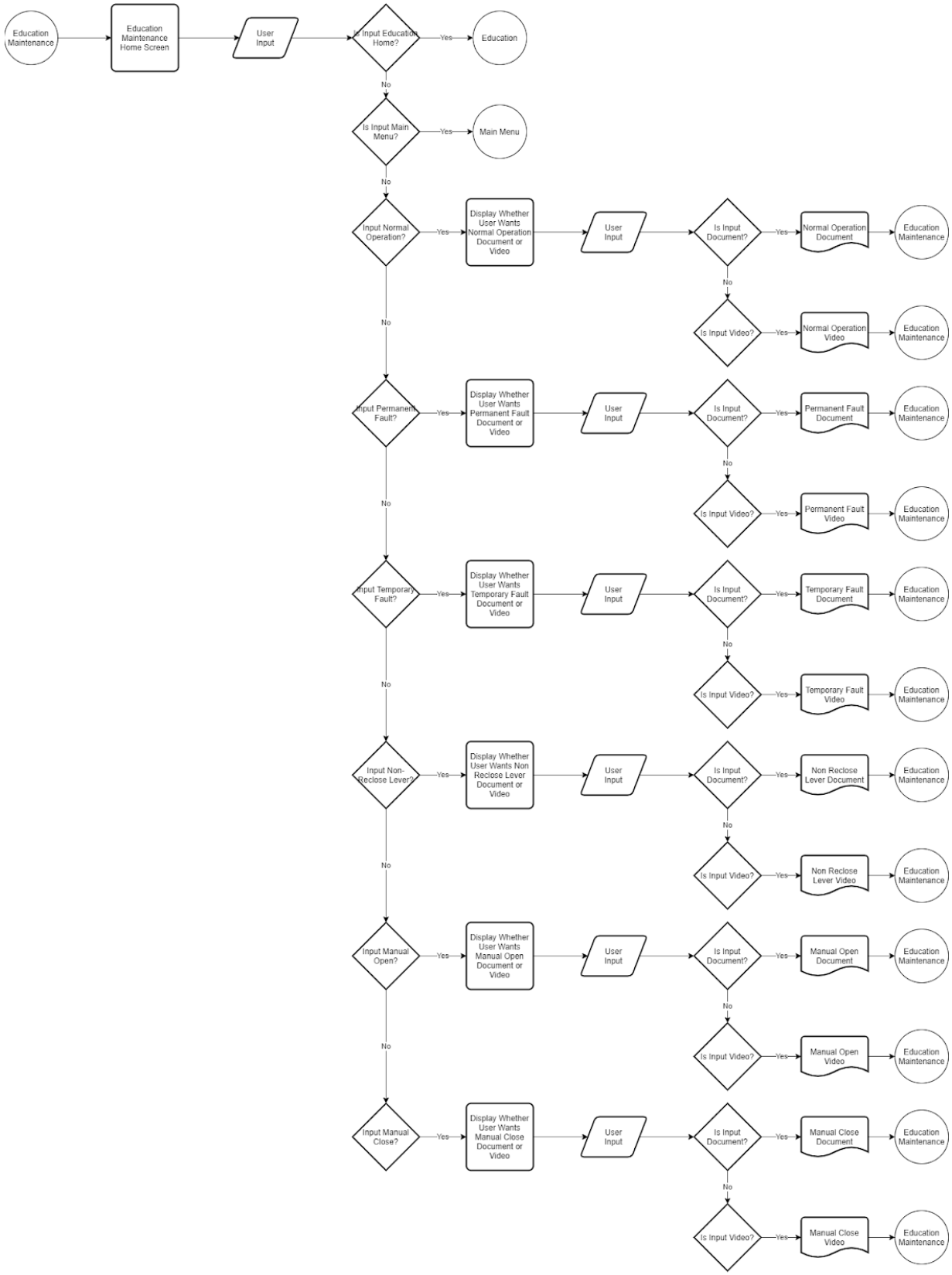

Fig. 4: Education Maintenance Module

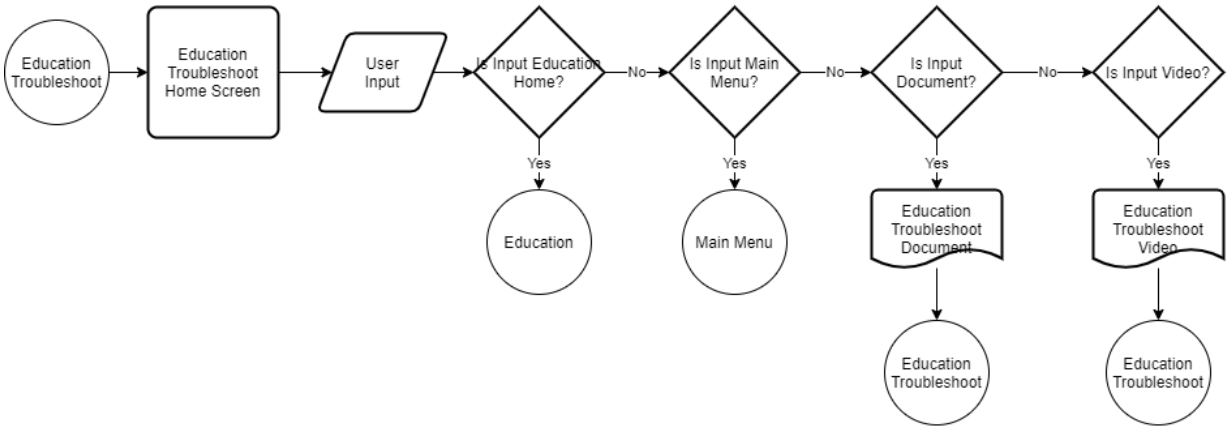

Fig. 5: Education Troubleshoot Module

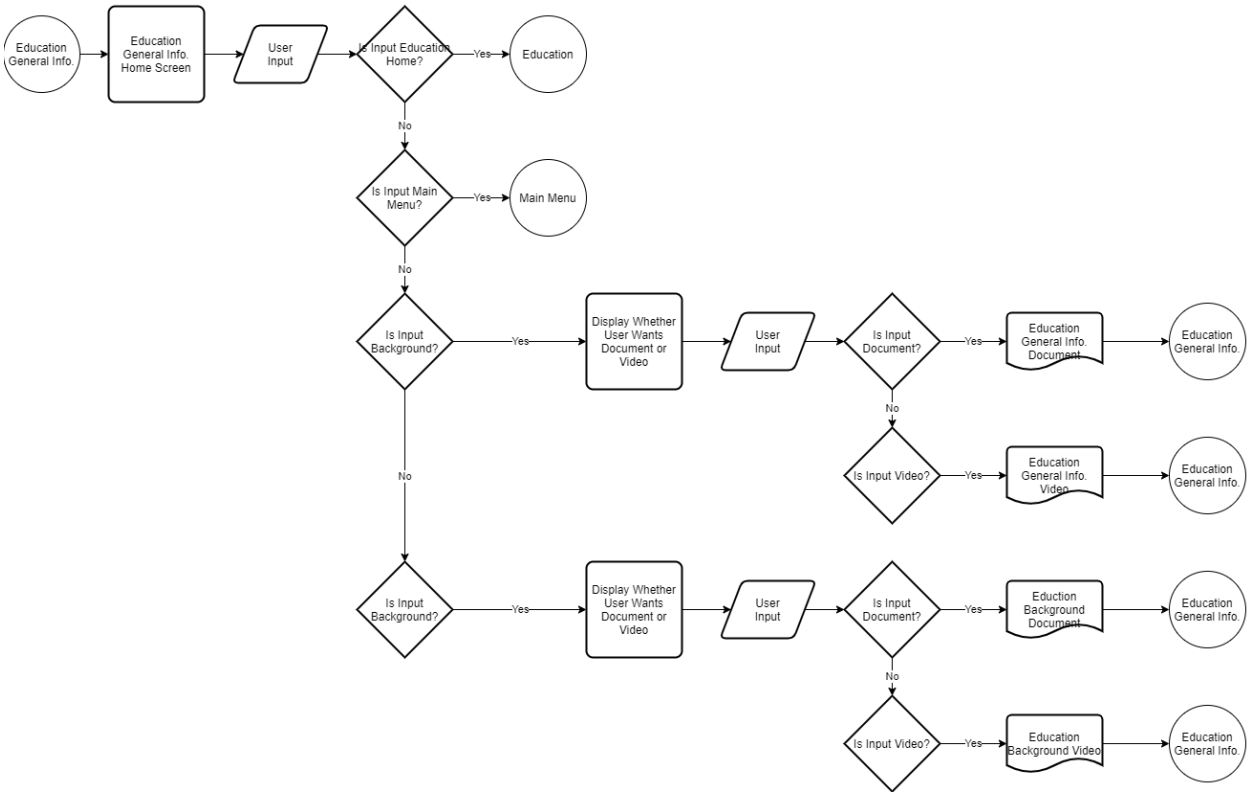

Fig. 6: Education General Information Module

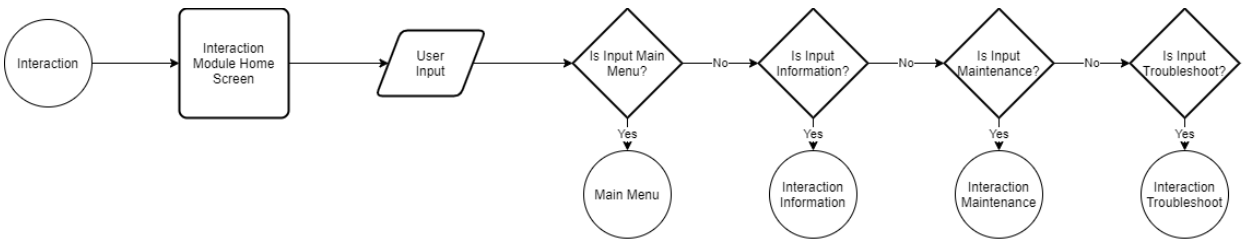

Fig. 7: Interaction Module High Level View

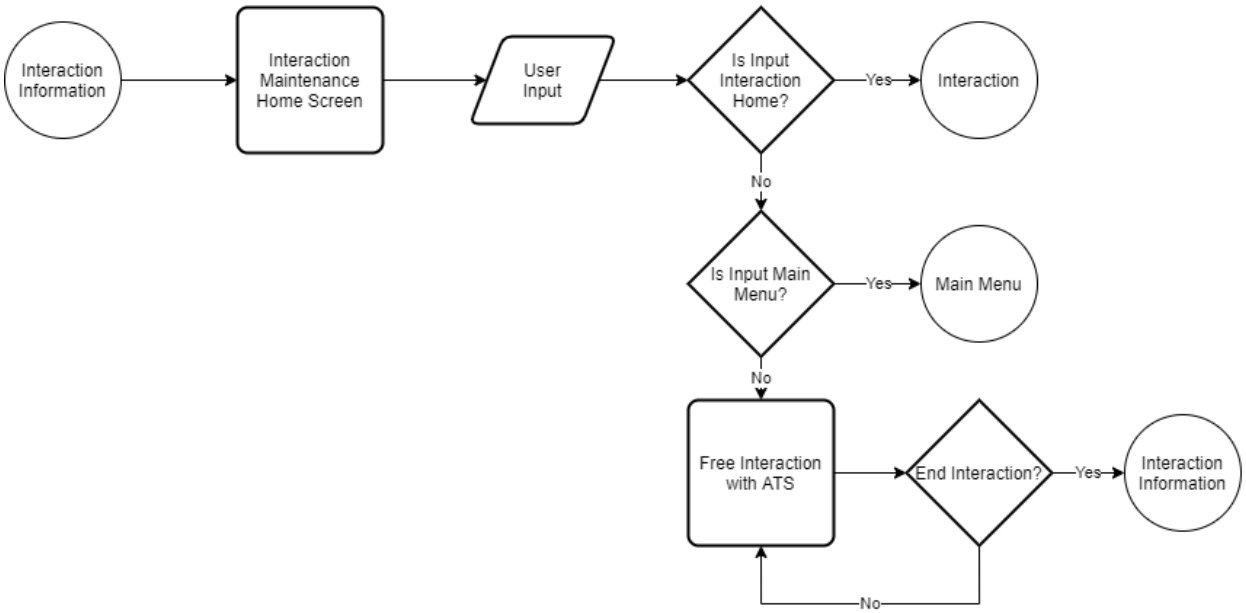

Fig. 8: Interaction Information Module

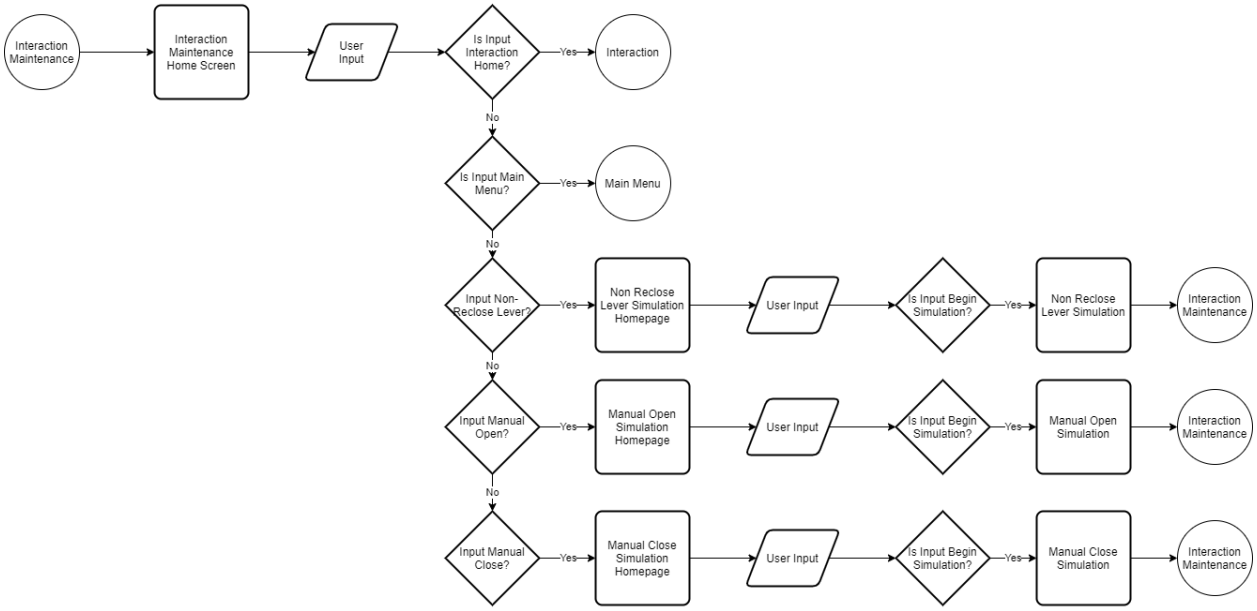

Fig. 9: Interaction Maintenance Module

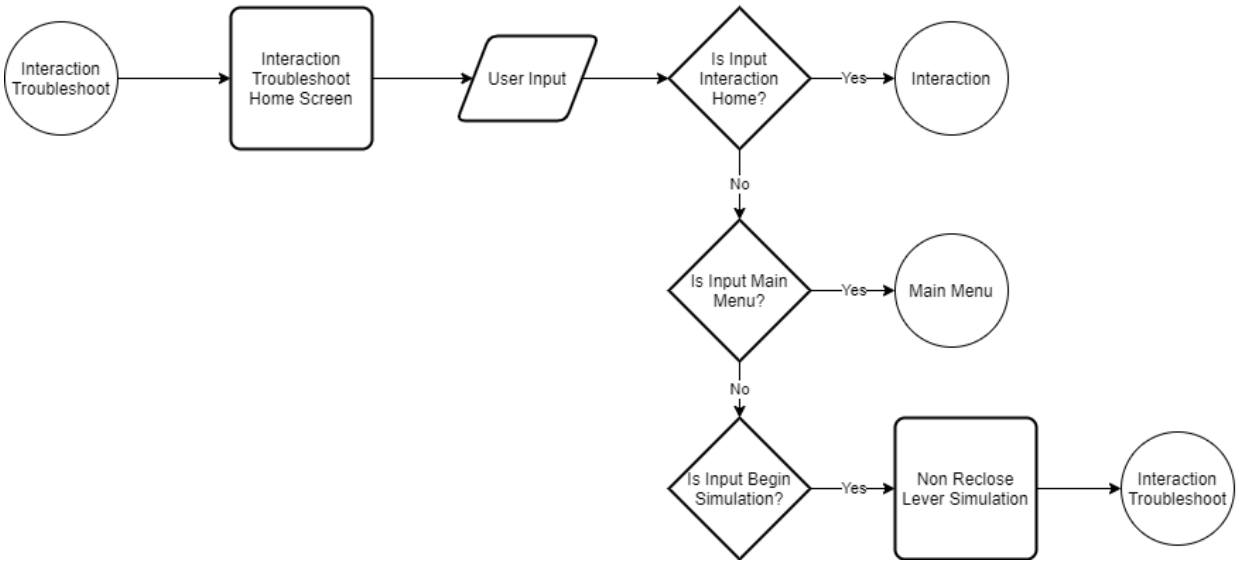

Fig. 10: Interaction Troubleshoot Module

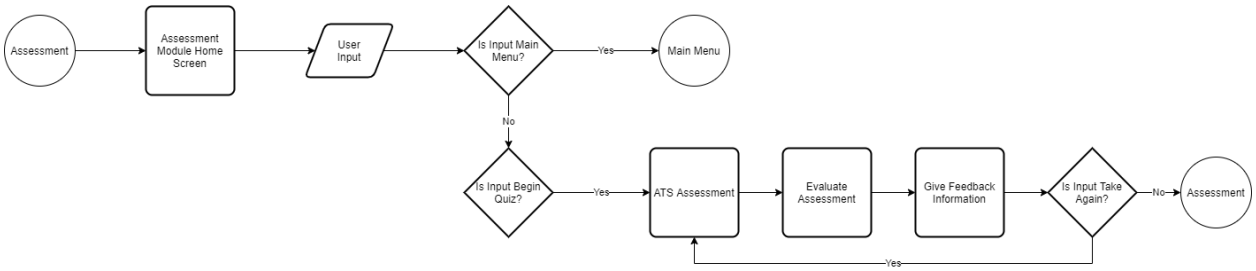

Fig. 11: Assessment Module

Summary

In summary, the preliminary design of the project is to create a 3D model of the ATS using Maya then import the 3D file into Unity and add a script that will be coded from JetBrains. The scripts imported from JetBrains will animate the ATS. This animated ATS will be used to show users how to interact with the ATS. From here the application will be split into four parts from the home screen which include safety protocols, informative videos, ATS interaction, and user assessment. The safety protocol section will teach users all the safety measures for the ATS. Informative videos will show users how the ATS works and the importance of it. The interaction part will take the 3D Model of the ATS that is made and when a user presses on a certain component of the ATS the part will mimic a real ATS. The assessments section will test users on how to perform maintenance of the ATS, the question will be coded in JetBrain and will be added to the app using Unity. This application will be uploaded to an iPad via exporting it as an iPad application in Unity using their building software.