

# **Software Test Document**

## **FIT AR Navigation App (FITARNA)**

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## **1. Introduction**

### **1.1. Purpose**

The purpose of this document is to clearly define the testing of the FIT AR Navigation App. This testing plan details the test cases and expected outcomes we will use to validate the functionality of our software features.

### **1.2. Scope**

The scope of the FIT AR Navigation app is to aid students and visitors with navigation and help them become familiar with the buildings of FIT using AR technology.

### **1.3. Definitions, Acronyms, and Abbreviations**

- AR - Augmented reality
- POI - Point of interest
- SDK - Software Development Kit
- FITARNA - Florida Institute of Technology Augmented Reality Navigation App

### **1.4. References**

This test document follows the guidelines set in the IEEE Standard for Software Requirement Specifications.

### **1.5. Overview**

This software test document serves to offer a comprehensive overview of FITARNA's features and how they will be tested to ensure functionality. Section 2 will cover test items, and Section 3 will cover the specific test cases.

## **2. Test Items**

The items to be tested are detailed in this document:

- Navigation Mode
  - Destination Selection
  - AR Overlays
  - Pathfinding
  - Cancel Navigation
  - Reach Destination
  - Start Navigation
- Tour Mode
  - Tour Mode Selected
  - Navigation to Each Stop
  - Pathfinding Updates
  - Interaction at Each Stop
  - Quiz Question
  - Pause and Resume

- Pop-ups
  - Navigation and Tour Mode Pop-ups
  - Tour Pop-ups
  - Links
  - Quiz Questions

### 3. Test Cases

#### 3.1. Navigation Mode

- 3.1.1. **Test case:** Destination Selection  
**Expected Result:** The system allows users to select a destination by typing into a search bar or selecting it from a dropdown menu. Navigation begins immediately after.
- 3.1.2. **Test case:** AR Overlays  
**Expected Result:** The system displays AR overlays, guiding users to their destination after the user selects a destination and until navigation ends.
- 3.1.3. **Test case:** Pathfinding  
**Expected Result:** The system calculates the user's route to the destination and updates the route as the user moves in real time.
- 3.1.4. **Test case:** Cancel Navigation  
**Expected Result:** User selects cancel navigation, and navigation ends.
- 3.1.5. **Test case:** Reach Destination  
**Expected Result:** User reaches the destination, and the system ends navigation immediately.
- 3.1.6. **Test case:** Start Navigation  
**Expected Result:** User selects destination from anywhere in the library, and navigation begins immediately after.

#### 3.2. Tour Mode

- 3.2.1. **Test case:** Tour Mode Selected  
**Expected Result:** FITARNA will go into “Tour Mode” and begin giving a self-guided tour to the user of the selected area.
- 3.2.2. **Test case:** Navigation to each stop  
**Expected Result:** FITARNA will display a series of arrows that will update, guiding the user to their desired destination.
- 3.2.3. **Test case:** Pathfinding Updates

**Expected Result:** FITARNA will utilize the GPS on a given user's system in order to approximate the direction and distance needed to get to their destination successfully.

**3.2.4. Test case:** Interaction at each stop

**Expected Result:** At each stop during a self-guided tour, FITARNA will present users with pop-ups they can browse through and interact with to progress tours.

**3.2.5. Test case:** Quiz Questions

**Expected Result:** FITARNA will give users a Quiz based on the information provided with the AR Tour's AR Pop-ups. FITARNA will also provide a score for the Quiz.

**3.2.6. Test case:** Pause and Resume

**Expected Result:** FITARNA will pause navigation and touring until the user unpauses. Once unpaused, FITARNA will recalibrate to the user's new position and continue the tour.

### **3.3. Pop-ups**

**3.3.1. Test case:** Navigation and Tour Mode Pop-ups

**Expected Result:** FITARNA will show the user AR pop-ups around points of interest during both navigation and tour mode.

**3.3.2. Test case:** Tour Pop-ups

**Expected Result:** During tour mode, tapping on a pop-up will progress the tour and navigation user to the next pop-up.

**3.3.3. Test case:** Links

**Expected Result:** Tapping on links in pop-ups will cause the link to open on the user's device.

**3.3.4. Test case:** Quiz questions

**Expected Result:** At the end of each stop in a tour, the system presents users with quiz questions. Polls can also be found in navigation and tour mode. Tapping on an answer in the pop-up will allow the user to answer. Immediate feedback is given afterwards.