ARFVIS TEAM

HOLOLENS SIGNAL DETECTION PROGRAM

ARFVIS PORJECT

ARFVIS DATABASE DESIGN

DATABASE GUIDELINES

Version 1.0

04-30-18

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**1 EXECUTIVE SUMMARY**

**Current Situation**

The program is currently running and is undergoing testing.

**Program Objectives**

Enable a user to send data of signals to a webserver.

**Scope**

The program overall covers a relatively small scope with design intended for HoloLens and a webserver.

**Solution Constraints**

The most impactful restraint is the availability of the design team.

**Summary of Program Design**

The design for the program was to break it into four phases, each building upon the other to increase both usability of the program as well as improve its capabilities.

**Resource Requirements**

Major requirements are a single HoloLens to test the webserver’s functionality and access to the computer lab where the software is being developed.

Implementation Requirements

Potential Risks

**2 INTRODUCTION**

***2.1 Purpose***

The purpose of this document is to both detail the general functionality of the ARFVIS Project while instructing users how to use the HoloLens and upload data.

***2.2 References***

Microsoft HoloLens Instruction Manual (see Appendix A.1)

***2.3 Scope***

**2.3.1 Included**

The software involved in the ARFVIS Program as well as the admin and user sites are within the boundaries of the project.

**2.3.2 Excluded**

The browser Users will select as well as the ISP and specific HoloLens hardware are out of the boundaries of the project and completely up to the User.

**3 CURRENT SITUATION**

The webserver is currently running. However, there are missing aspects needed for proper consumer use of the product.

**4 PROGRAM OBJECTIVES**

The objective of this program is to enable users, using a set HoloLens, the ability to visually observe in-range Wi-Fi signals, determine relevant characteristics such as distance, azimuth, strength, etc., and log the top signals on a database.

**5 SOLUTION CONSTRAINTS**

The constraints of the program design include:

- The availability of the design team

**6 RESOURCE REQUIREMENTS**

***6.1 Funding and Labor Source***

Funding comes from USMA in the form of the HoloLens device used for testing and the provision of a network infrastructure to utilize testing and development. Major requirements are a single HoloLens to test the webserver’s functionality and access to the computer lab where the software is being developed.

**7 PROGRAM DESIGN**

The design for the program was to break it into four phases, each building upon the other to increase both usability of the program as well as improve its capabilities.

*Phase 1* – User Vignettes/Use Cases, Database Design, and Interaction Design

*Phase 2* – Class Diagram, Sequence Diagram, Product Backlog, Initial Test Plan, Initial System Implementation, and Code Management Plan

*Phase 3* – Test Plan

*Phase 4* – Refining, Revision, and Updating of Prior Phases to Finalize Product

The program development began 28FEB2018 and is scheduled to be finished NLT 10MAY2018. Participants in the program are CDTs Bondoc, Lawshea, Stokes, and LTC Hamilton, the design team.

**8 IMPLEMENTATION REQUIREMENTS**

***8.1 Proposed Milestones***

Proposed milestones include:

- Developing a webserver

- Having a functioning webserver

- Refine server to receive data from an external source and handle the data properly

- Update the working server to present itself as a website that is both attractive and functional.

**9 RISKS, ASSUMPTIONS, AND ISSUES**

***9.1 Risks***

The risks of this program are low. The most threatening issue would be the transition of software issues to hardware issues, specifically for the HoloLens device.

***9.2 Assumptions***

The main assumption made is that the users all will have a HoloLens device, and at some point, internet access to transfer data to the database.

***9.3 Issues***

**10 USE CASES**

The program included the following use cases:

* Look at Top Signals
* View for Device
* Map View of Signals

Look at Top Signals: The user will need to have uploaded the data to the database in order for the data to be sorted. Then the user can access the user site to set the top signals acquired from the HoloLens.

View for Device:

Map View of Signals: