GNG1103 Group 9 : Deliverable F Prototyping Plan

1. **Purpose of the test**

   The purpose of this prototype and test is to ensure that a number of fundamental components are functional before proceeding. A working raspberry pi with the appropriate libraries installed, a Ross user interface for future porting with the system, a working screen-portable camera intended for QR code scanning.

   Items being learned include: how the pi works with the software, how the Ross Dashboard interacts, and what the next steps should be. As well, as the basics of coding in python.

2. **Description of Test Objectives**

- Ensure camera works, preferably with QR scanning capabilities developed by given schedule date
- Port ROSS interface with system, providing ability to manipulate camera remotely (ON/OFF)
- Create dummy student database/site for use by the system

What exactly is being learned or communicated with the prototype

- Ironing out bugs and unexpected software issues
- How the Pi works
- How Ross Dashboard works

Expected possible results

- Fully functioning camera
- QR Code reading ability
- Workable U.I

How will these results be used to make decisions in the project

Criteria for test failure and success

Success: the camera is able to read the QR code and the Ross Dashboard general U.I is well received.

Failure: the camera is unable to detect or read the QR code, device malfunctions or has unexpected issues like overheating, or the U.I is received poorly.

3. **Describe Prototype (Comprehensive or focused) and reason for selection of prototype method**

   The current prototype is mostly comprehensive due to the number of components involved and general outlook of the test. The current prototype is almost the final representation of the project, as most of the work will be on the Ross Dashboard U.I.

   Explain testing process in detail to allow replication of test

   Position QR code in front of the camera, if camera successfully detects QR code, proceed to scan another QR code.

   What information is being measured

   If the camera is able to read a QR code and can send the information to the ross dashboard for it to be accurately displayed on the user interface.

   What modeling and research is required

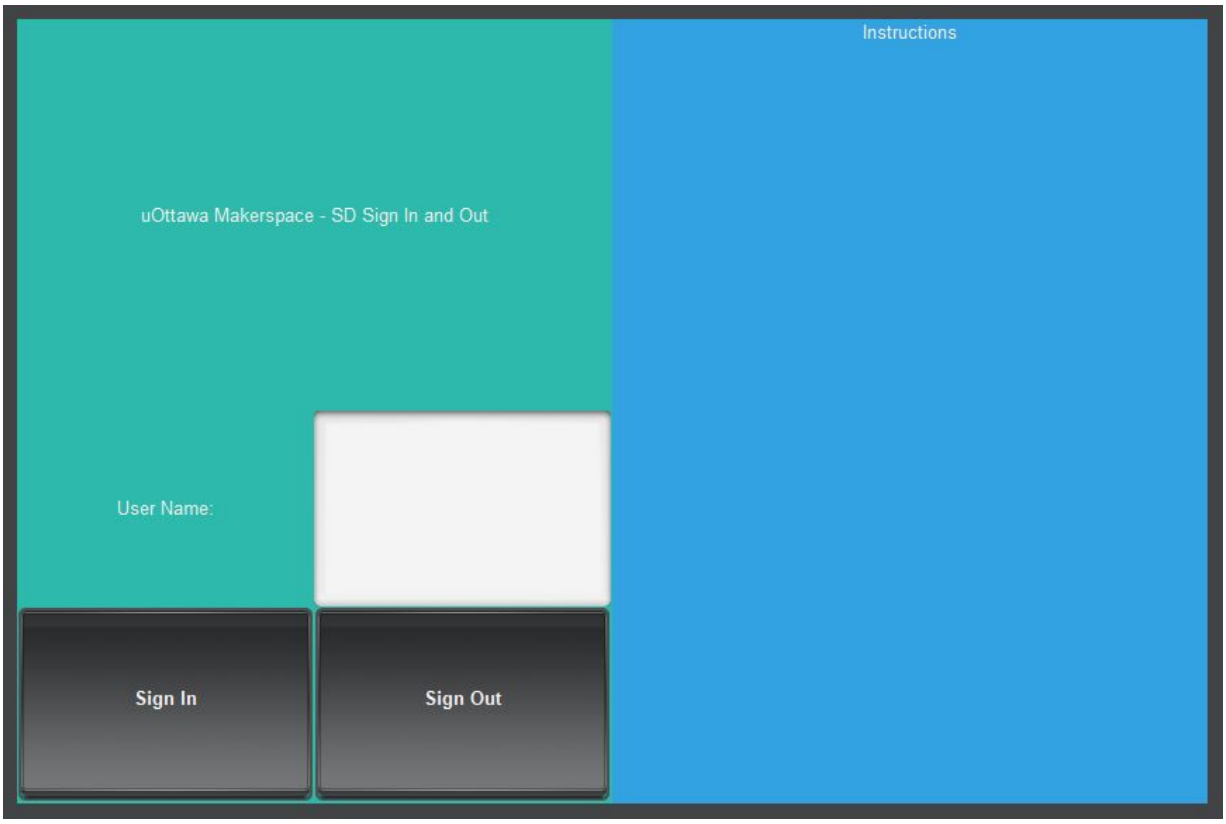
   Continue to research how to use the ross software and how to connect it to the data being collected through the pi. Research is also needed on optimizing the pi to reduce the chances of failure.

   Next steps for the next prototype:

- Continue working on the Pi
- Continue updating the U.I
- Get the U.I to communicate to the Pi

In conclusion the first prototype of the physical QR code scanner verifies the idea is functional. The Raspberry PI is capable of identifying QR codes VIA the camera and proper software libraries. This is a major stride for further development of the product that the consumer(s) will be able to use. The DashBoard Ross software is going to be where the bulk of our energy will be invested in order to further develop the next prototype. The DashBoard UI will be developed to a much greater degree thus building on the ideas that were not yet acted on in the first prototyping. Further trouble shooting of the camera is needed in order to be able to display on laptop and computer screens, etc.

Prototype U.I



Prototype Pi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