3D Printer Management System

Group 9

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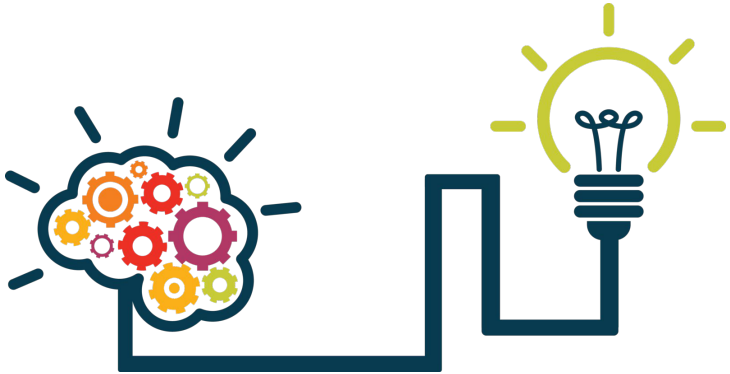
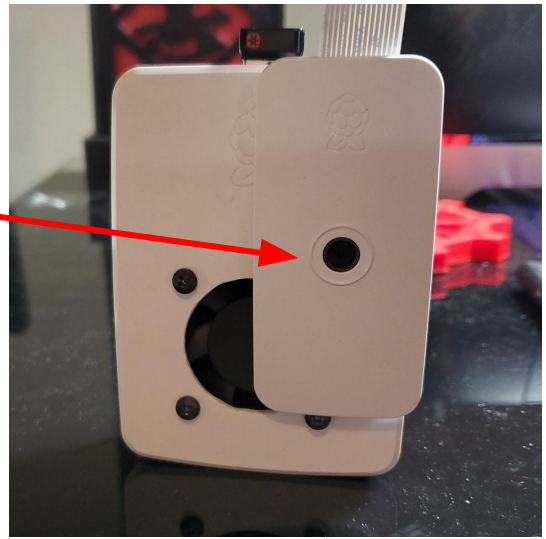
The Problem

The Makerspace lacks a simple and fast 3D Printer management system. In that they have no good way of keeping track of their SD cards, print times, and collecting feedback from users.

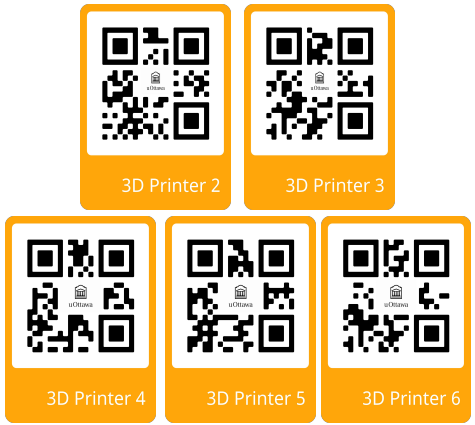


Our Project

Camera

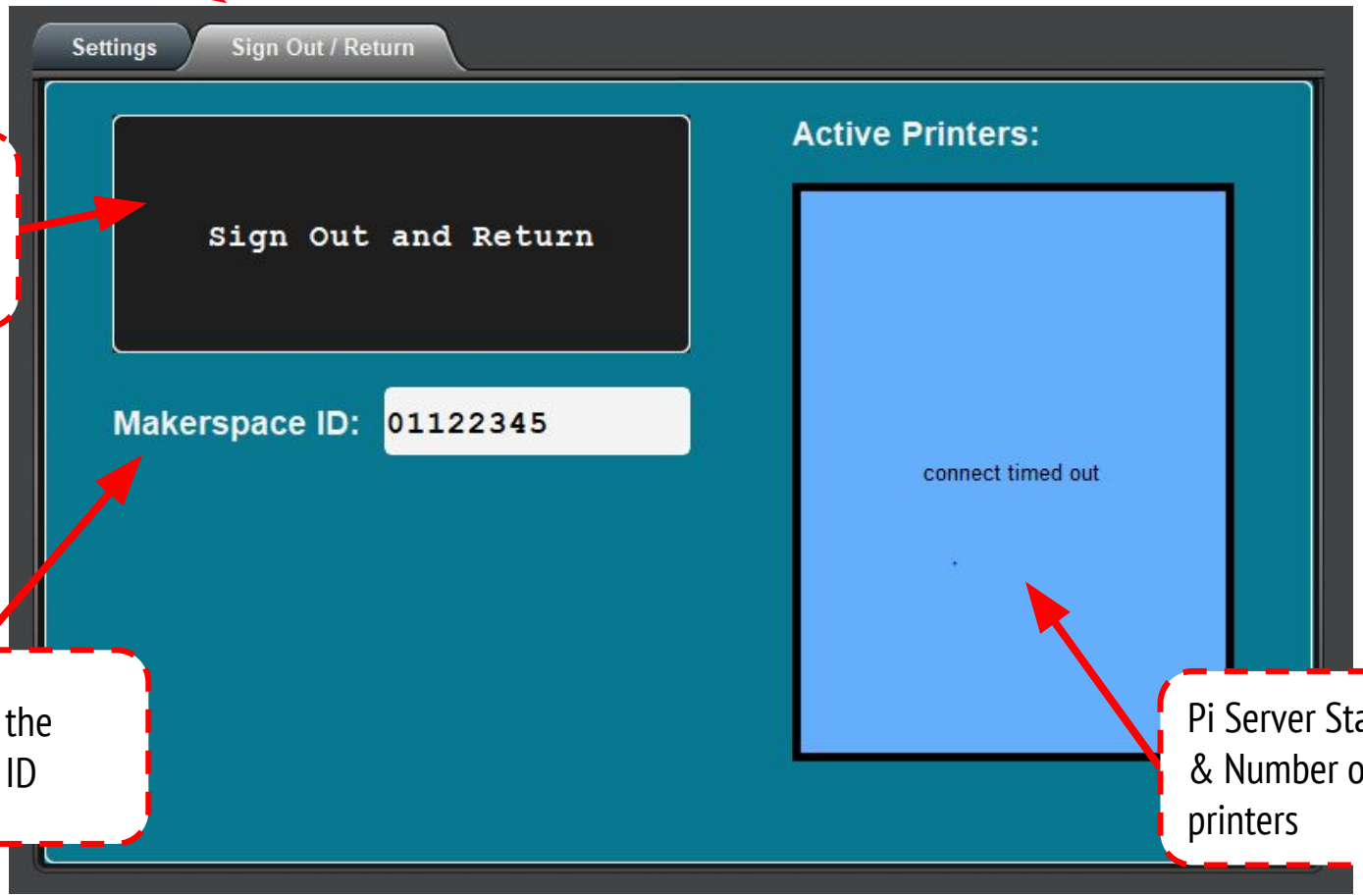


Cooling fan



Dashboard

Sign Out/ Return Tab

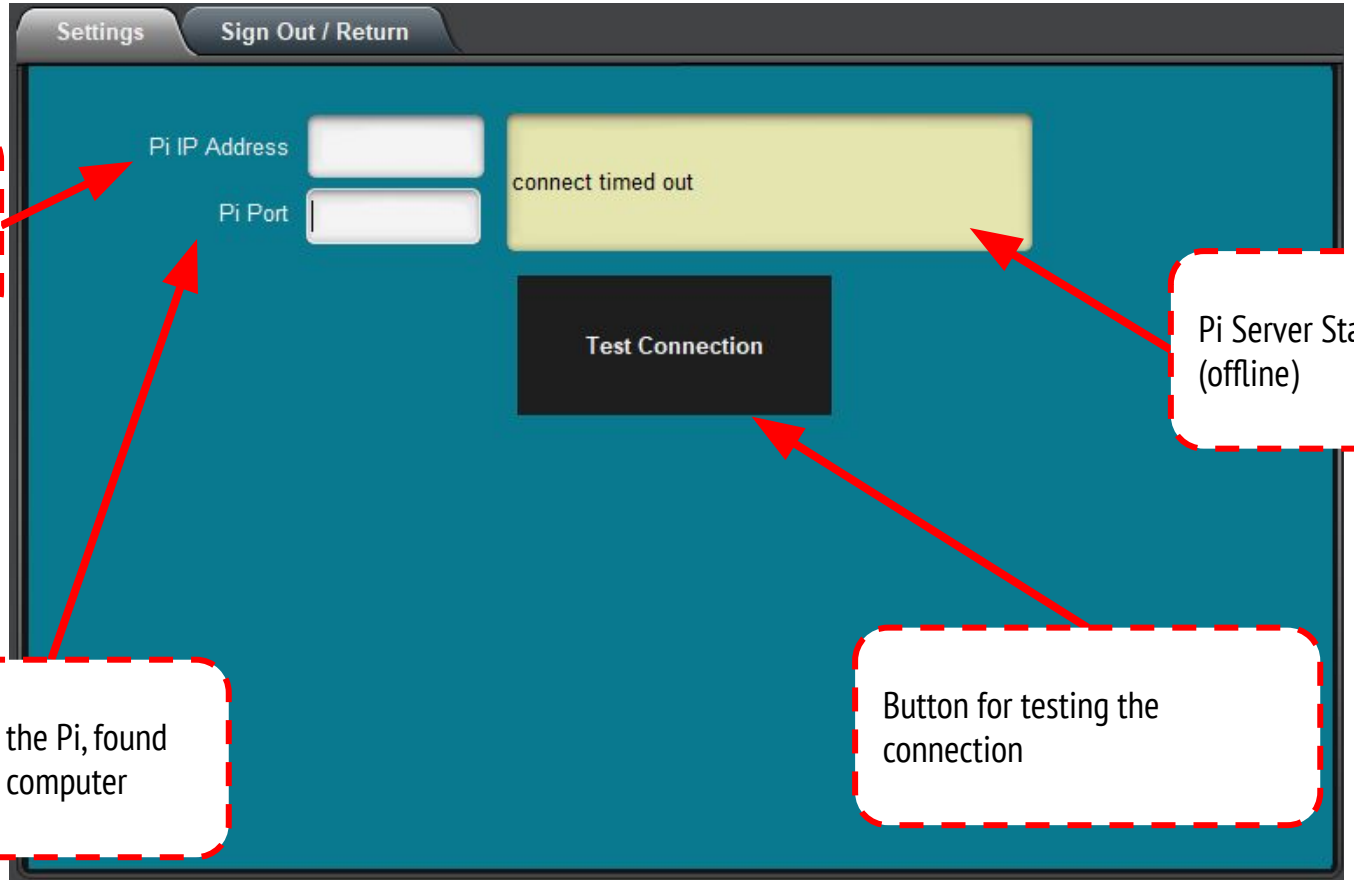


Sign Out & Return Button

Text box for the makerspace ID

Pi Server Status (offline) & Number of active printers

Dashboard



Settings Tab

Text box for the Pi's IP Address

Port for the Pi, found on your computer

Pi Server Status message box (offline)

Button for testing the connection

Behind the Scenes

The Pi runs two separate codes simultaneously. One on the Pi itself, the other on a “**virtual** environment”

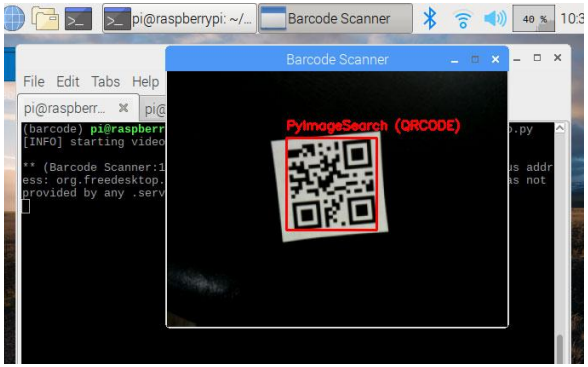
The Virtual environment

- Reads the QR codes by analyzing video from the camera in real time
- When found the code is scanned, data is collected, and added to a csv file saved to the desktop of the Pi

Regular

- Connect the Pi to dashboard by creating a server that runs on the Pi itself
- reads the csv file when the button on dashboard is pressed and sends the data

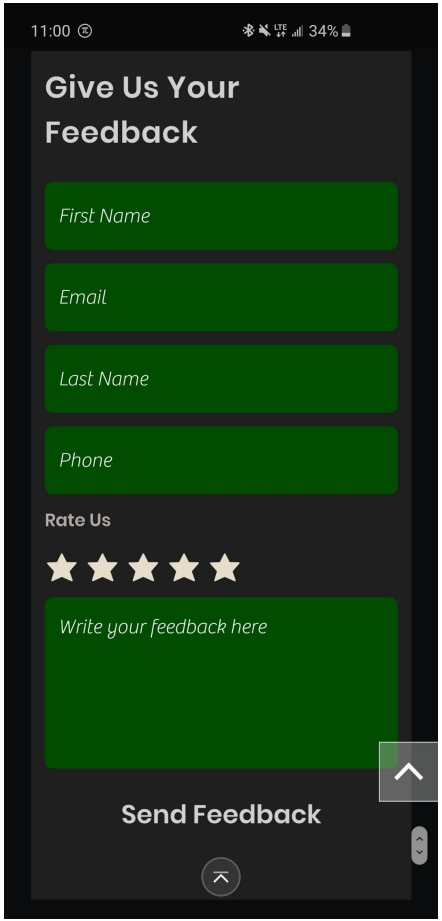
How it Works



1. The Pi creates a server, that can be accessed from the dashboard software
2. On dashboard the Pi's IP Address and port is entered to initialize the connection
3. The QR code on the SD card is flashed in front of the camera on the Pi, where it is automatically scanned
4. On dashboard the signout/return button is pressed, and the 3D printer is automatically added or removed from the 'Active Printers' list. The start time is also recorded

Collecting User Feedback

- To gather feedback from the user, an email is sent with a link to our website
- The Pi automatically sends the email by using the universities database connected to their student ID
- Due to lack of access to the University servers, this is not included in our final project



Any Questions?