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# 3D Printer Management System

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Group 9

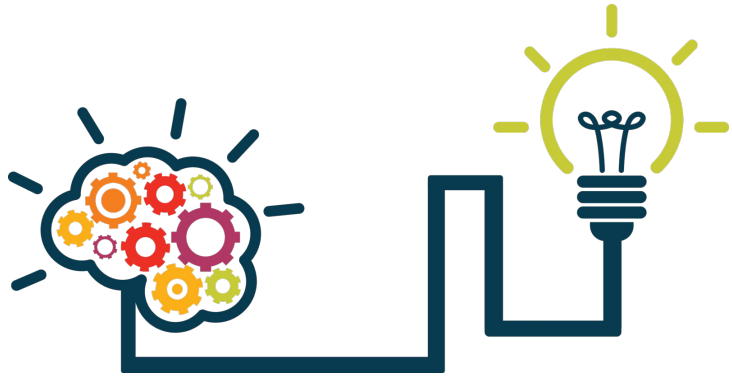
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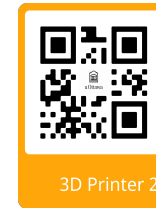
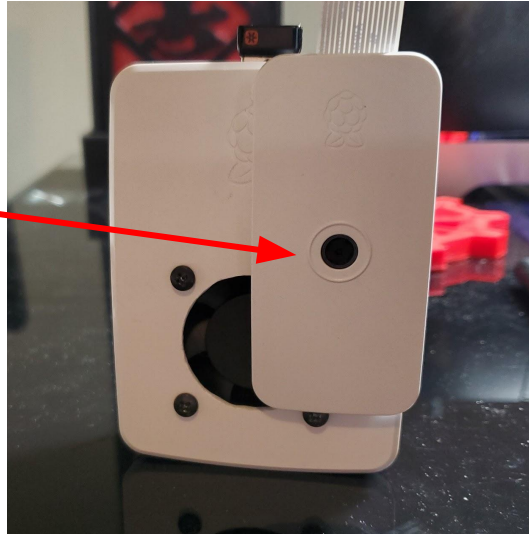
# The Problem

**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



Sign Out/ Return  
Tab

# Dashboard

Sign Out &  
Return  
Button

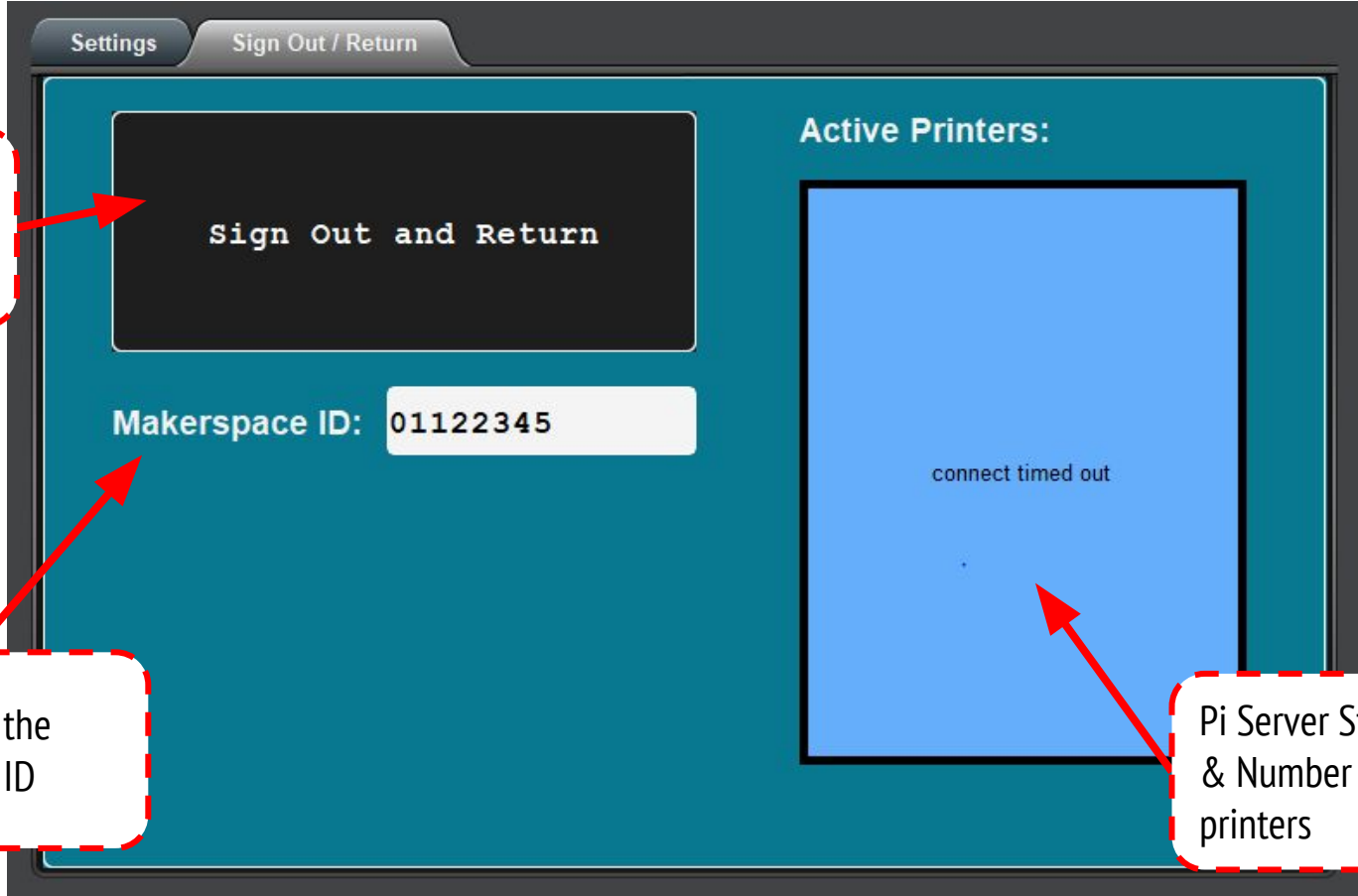
Makerspace ID: 01122345

Text box for the  
makerspace ID

Active Printers:

connect timed out

Pi Server Status (offline)  
& Number of active  
printers



# Dashboard

Settings Tab

Settings

Sign Out / Return

Pi IP Address

Pi Port

connect timed out

Test Connection

Text box for the  
Pi's IP Address

Pi Server Status message box  
(offline)

Port for the Pi, found  
on your computer

Button for testing the  
connection

A screenshot of a web-based dashboard for a Raspberry Pi. The interface has a dark grey header with two tabs: 'Settings' (which is active) and 'Sign Out / Return'. The main content area has a teal background. On the left, there are two white text input fields labeled 'Pi IP Address' and 'Pi Port'. To the right of these fields is a yellow rectangular box containing the text 'connect timed out'. Below the input fields and the yellow box is a dark grey rectangular button labeled 'Test Connection'. Red dashed-line callout boxes with arrows point to various elements: one points to the 'Settings' tab, another to the 'Pi IP Address' input field, a third to the 'Pi Port' input field, a fourth to the yellow 'connect timed out' box, and a fifth to the 'Test Connection' button.

# Behind the Scenes

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

## The Virtual environment

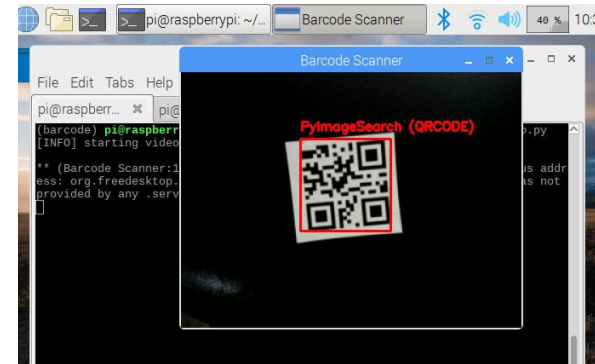
- Reads the QR codes by analyzing video from the camera in real time
- When found the code is scanned, data is collected, and added to a csv file saved to the desktop of the Pi

## 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

11:00 11:00 LTE 34%

## Give Us Your Feedback

First Name

Email

Last Name

Phone

Rate Us

★★★★★

Write your feedback here

Send Feedback



# Any Questions?

