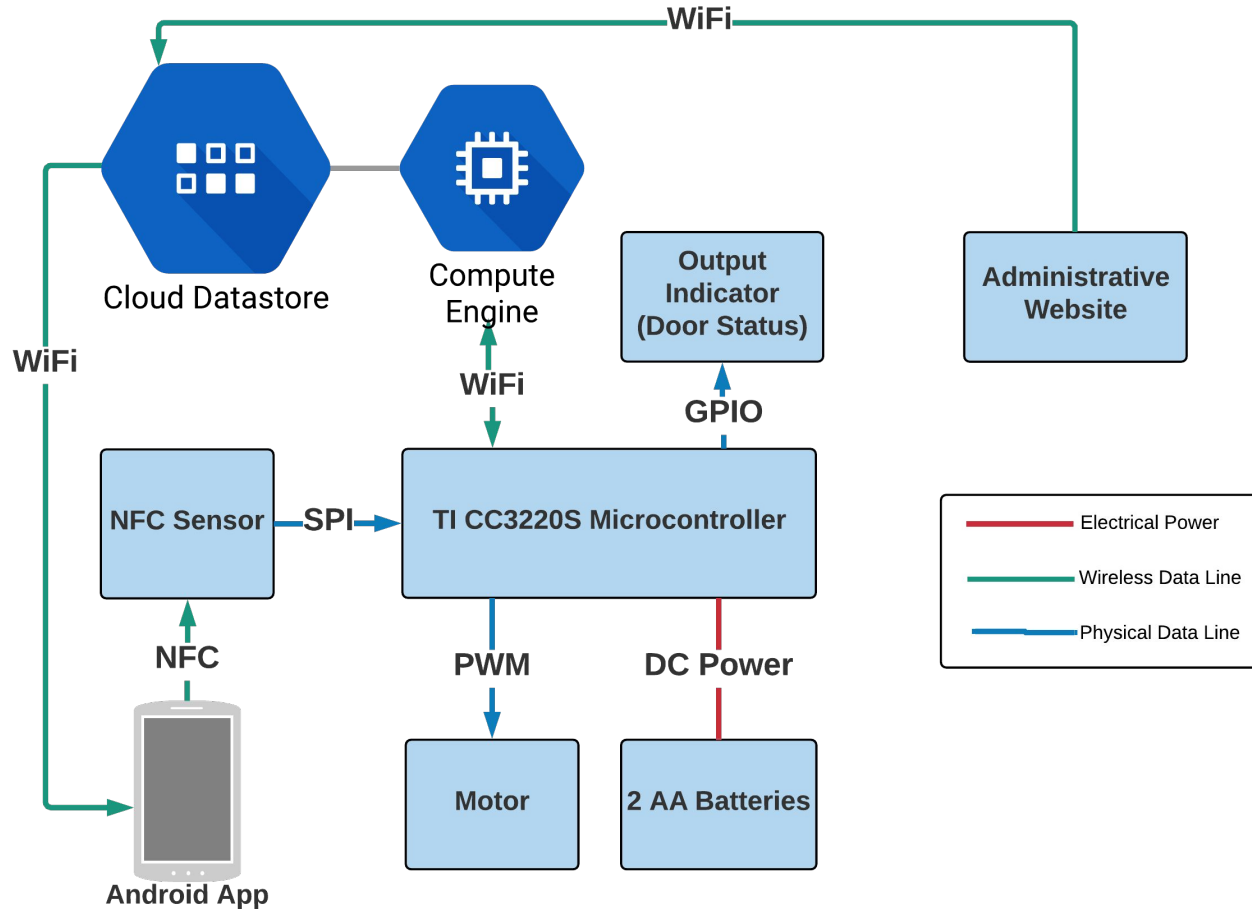
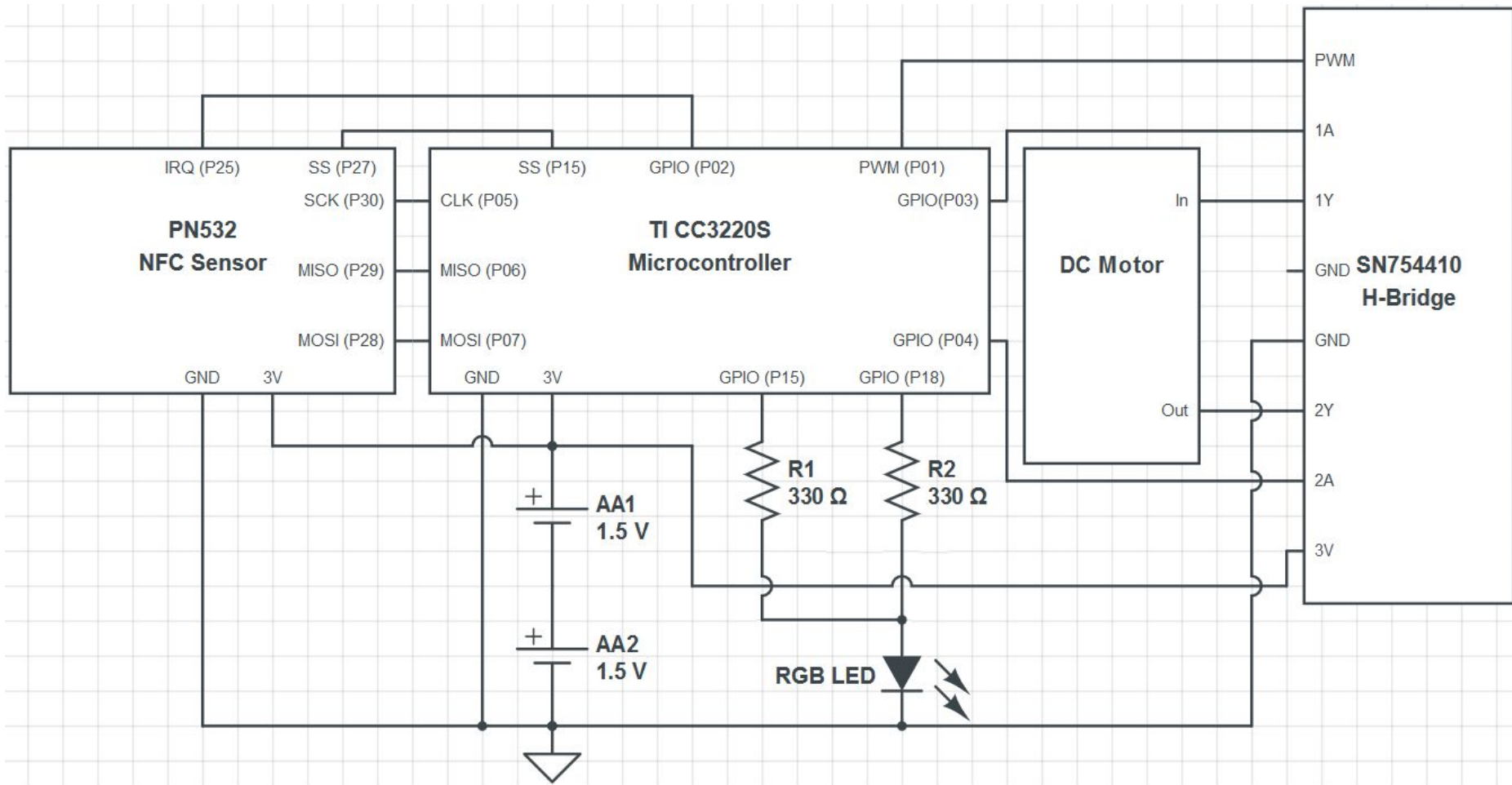


# Lock Management System

Samuel Wu & Bowen Brooks





# Responsibilities

## Sam

- Datastore APIs
- Power Calculations
- TI CC3220S
- PN532 NFC Sensor

## Bowen

- Gateway using Cloud Compute Engine
- TCP/SSL connections in Gateway/MCU
- Query/Log users in Compute Engine
- Reset logs
- Designing the Datastore layout
- WIFI on TI CC3320S

# Gateway using Google Compute

- Running Linux VM with a static IP
  - Uses Google Datastore APIs
- Accepts a cruzID and room\_number from TCP connection
- Logs user in and out of room
- Changes capacity of room
- Sends TCP message back with a “230 Allowed” or “430 denied”

# WIFI connection on CC3220

- Sensor Starts up and establishes to Network.
- Once Sensor reads in data Sets up TCP connection with Gateway
  - Sends CruzID and room\_number
- Waits for a “230 Allowed” or “430 denied” response from TCP
- Can send reset signal to clear capacity and room logs

# Google Datastore

Room Entity			
ID	Room #	Groups	Users
name=index0	E2-399	["BELS", "AMS147", "CMPS101"]	jsmith
name=index1	BE340A	["CMPE123A", "CMPE123B", "CMPE129B"]	

Student Entity			
ID	Name	cruzID	Groups
name=index0	Samuel Wu	sazwu	["AMS147", "CMPS12B"]
name=index1	Bowen Brooks	bojbrook	["CMPE123A"]

BE340 Log Entity					
ID	cruzID	Enter Time	Exit Time	24 hour time	Cumulative
name=sazwu0	sazwu	02-07 17:26:55	02-07 17:27:02	0:00:07	0:00:07
name=bojbrook0	bojbrook	02-07 17:26:55	02-08 11:30:22	18:03:26	18:03:26
name=sazwu1	sazwu	02-08 11:27:19	02-08 11:27:57	0:00:44	0:00:51
name=hello0	hello	02-08 11:31:02	null	null	null

# NFC Sensor

- Uses SPI
  - Send and receive command frame
  - Wait/send ACK
  - Read/Write to registers
- Can read unique MIFARE tags
- Can configure some device settings



# Winter Quarter Implementation

1. Read unique passive tags
2. Sends tag information and room number to cloud
3. Cloud searches database
4. Cloud sends back boolean
5. Red or Green LEDs turn on depending on response

# Spring Quarter Goals

- Read active NFC tags (Android phone)
- Have administrative website
- Have Android app
- Clean UI for website and app
- Maximize power efficiency
- Turn DC motor, use sensor interrupt