ECE 416- Updated Project Description and Schedule

Date: 02/05/2019   Team #: 33

Project Title last semester: Smart Door Intelligent system

Project Tittle this semester: Anti-theft Package Security Home System (APSHS)

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1. <u>Describe changes in the project if different form the proposal</u>
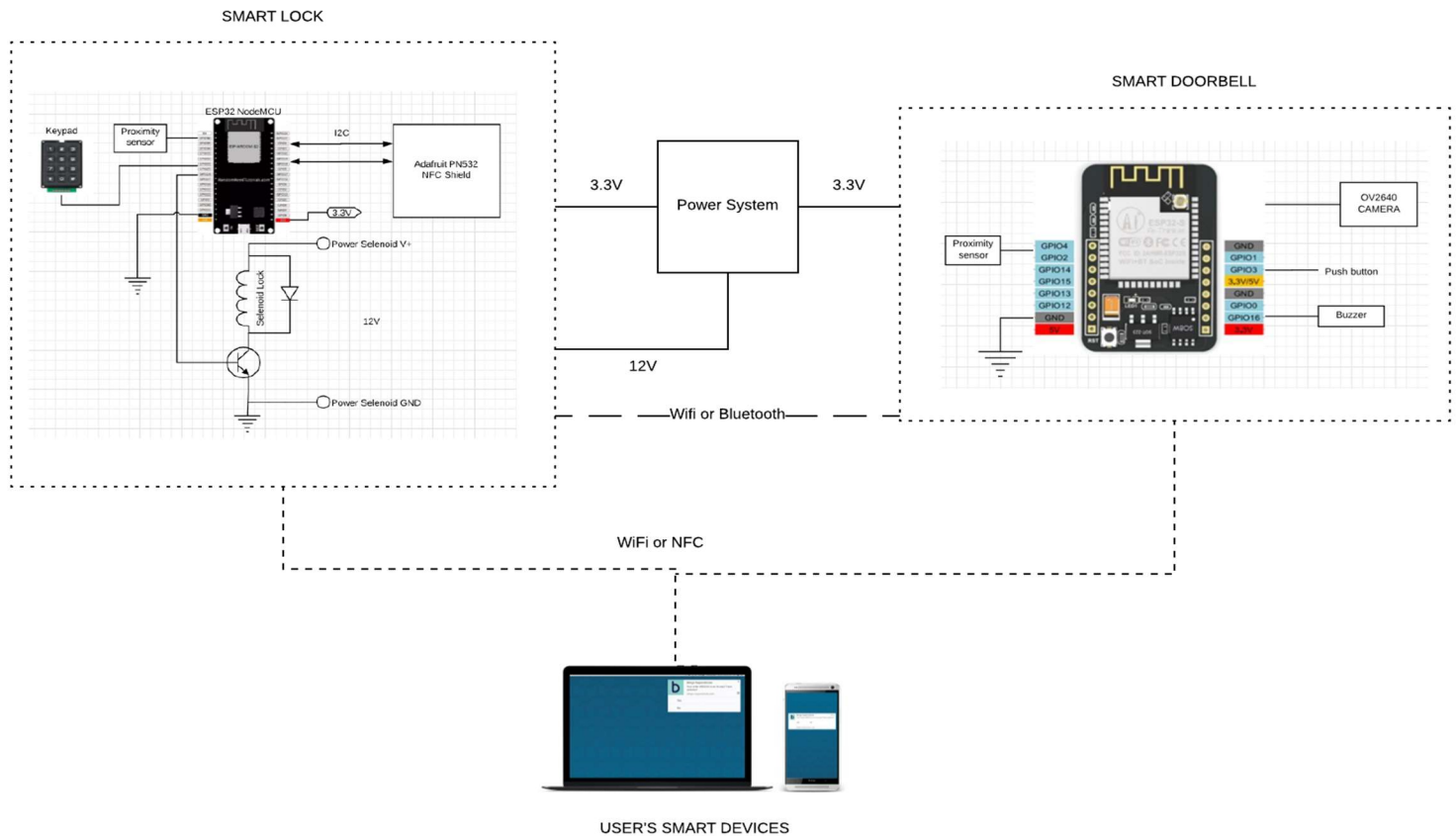
Figure 1 Block Diagram Group 33

For our project we have added some components to make it more interesting. The major change we made was adding the Smart Doorbell module to the project. The Smart Doorbell consists of a Wi-Fi camera module that will use face recognition to alert the user when someone is at the door trying to pick a delivered package. There will be two proximity sensors to detect when someone is at the door. One proximity sensor will be on the Smart Lock module and the other one on the Smart Doorbell module. The camera module will turn on when someone is in range of both the sensors. Once the camera senses who is there will be a signal sent to the person to notify that someone is at the door. There will be a list of parameters to indicate if someone should or shouldn't be at the door. If someone isn't supposed to be at the door a notification will be sent to the user and a buzzer will go off. The Smart Doorbell circuit though is tentative, and we are not sure if this is the final product. We are also currently working on a emergency power system for our project in the event that a power outage were to occur.

2. <u>Work performed and milestone achieved since the approval of the proposal in ECE 414</u>

We removed the Arduino MCU due to its lack of Wi-Fi interface 01/15/19

We ordered main components for Smart Lock module 01/16/19

We selected ESP32 as our main MCU 01/20/19

We decided to remove the linear actuator 01/22/19

Designed preliminary schematic for Smart Doorbell Module that will use face recognition 01/28/19

Android App login screen was developed on 01/29/2019

We decided to add the DC-DC converter to step up the voltage because of the amp draw of the solenoid lock 02/01/19

3. <u>List major parts and components (microcontollers, sensors, actuators). Indicate if delivered or still need to be obtained.</u>

	Name	Description	Quantity	Price	Link	Distributor	Status	Datasheet
1	Adafruit PN532 NFC/RFID Controller Shield for Arduino	Shield for the arduino to enable NFC	1	$39.95	Link 1	Amazon/Adafruit	Received on 01/19	Link 1 Link 2
2	Robodo Electronics SLNDLTCH12 12V Electronics Lock Assembly Solenoid Low Power Consumption	Electric lock for the door	1	$17.61	Link 1	Amazon/Adafruit	Received on 01/19	Link 1
3	ESP32	Microcontroller with WiFi capabilities like the ESP8266	1	$11	Link 1	Amazon/Hitlego	Received on 01/31/19	Link 1
4	ESP32 - CAM	WiFi module for Smart Doorbell	1	$7.50	Link 1	Banggood/Geekcreit	In Transit	Link 1
5	1N4004 Diode	Protection diode for selenoid lock	1	$0.05	Link 1	Amazon/D-PLANET	In Transit	Link 1
6	TIP102 Transistor	Switch to enable power to solenoid	1	$1.60	Link 1	Amazon/STMelectronics	In Transit	Link 1
7	3.7V LiPo	Backup power system	1	$13.53	Link1	Amazon/Adafruit	In Transit	Link 1
8	DROK LM2577 DC-DC Booster converter	DC-DC boost converter (3vto12v) to drive the Solenoid	1	$15.26	Link1	Amazon/Adafruit	In Transit	Link 1

4. Updated Project Schedule   (*to be used for monitoring project progress*)

Task or Milestone	Semester week
We are adding an emergency power system (schematic)	4
Implement Wi-Fi bridge between ESP32 and computer	4
Program ESP32 to trigger solenoid using NFC shield.	4
Order power system components	4
Finalize schematic for Smart Doorbell	5
Program UI for monitoring people traffic through the door	5
Test power system circuit (emergency as well)	5
Establish communication with Android app and ESP32	6
Work on face recognition algorithm	6
Implement proximity sensor (algorithm and hardware)	6
Implement Wi-Fi communication between ESP32 and ESP32-CAM	7
Keep working on face recognition algorithm	7
Implement profile database support for Android app to have multiple users	7
Implement IoT platform to unlock Smart Lock using phone through Wi-Fi	8
Test face recognition algorithm	9

Note: Schedule will be updated on week 6 with further information.