Keyless Entry is developed to provide convenience and security to the front door. Keyless Entry is inspired from the current rise of smart home products such as smart doorbells which has seen a rise in popularity. The target market for Keyless Entry are people who want an increase in security for their home. Using a camera and a facial recognition algorithm, Keyless Entry unlocks the front door when an authorized user is detected. This gives the user convenience as the user does not have waste time with his or her keys. Keyless Entry can also be implemented with package couriers like Amazon to let approved couriers to drop the package inside the user's house which stops packages from being stolen.

The mechanical components for this product consists of stepper motor to turn the lock; a raspberry pi in order to run the facial recognition program; a micro controller to drive the stepper motor and to control any additional peripherals; and a keypad for users to enter a passcode in case of emergencies. Hopefully this product can lead to increase in user convince and security.

*From Progress Report*

The Keyless-Entry Using Facial Recognition (KEFR) is developed to provide convenience and security to the front door. Using a camera and a facial recognition algorithm, the KEFR will unlock the front door when an authorized user is detected. Although this is the basis of the KEFR, it can be expanded to perform more functions such as partial access to the door for couriers to leave packages inside the house. The components in this system consists of two microcontrollers (primary and secondary), camera, accelerometer, stepper motor, and keypad. The primary microcontroller will analyze the face using the camera and determine whether the person is authorized or not. For the secondary microcontroller, it will control the stepper motor to the lock, read keypad inputs, and detect possible intrusion using the accelerometer.

The KEFR is part of the emerging market of smart homes where automation is integrated into daily lives. It should be noted that the KEFR isn’t limited to the front door. The KEFR can see possible application in hotel rooms, offices, and other indoor areas where security access is needed.