SMART LOCKING SYSTEM

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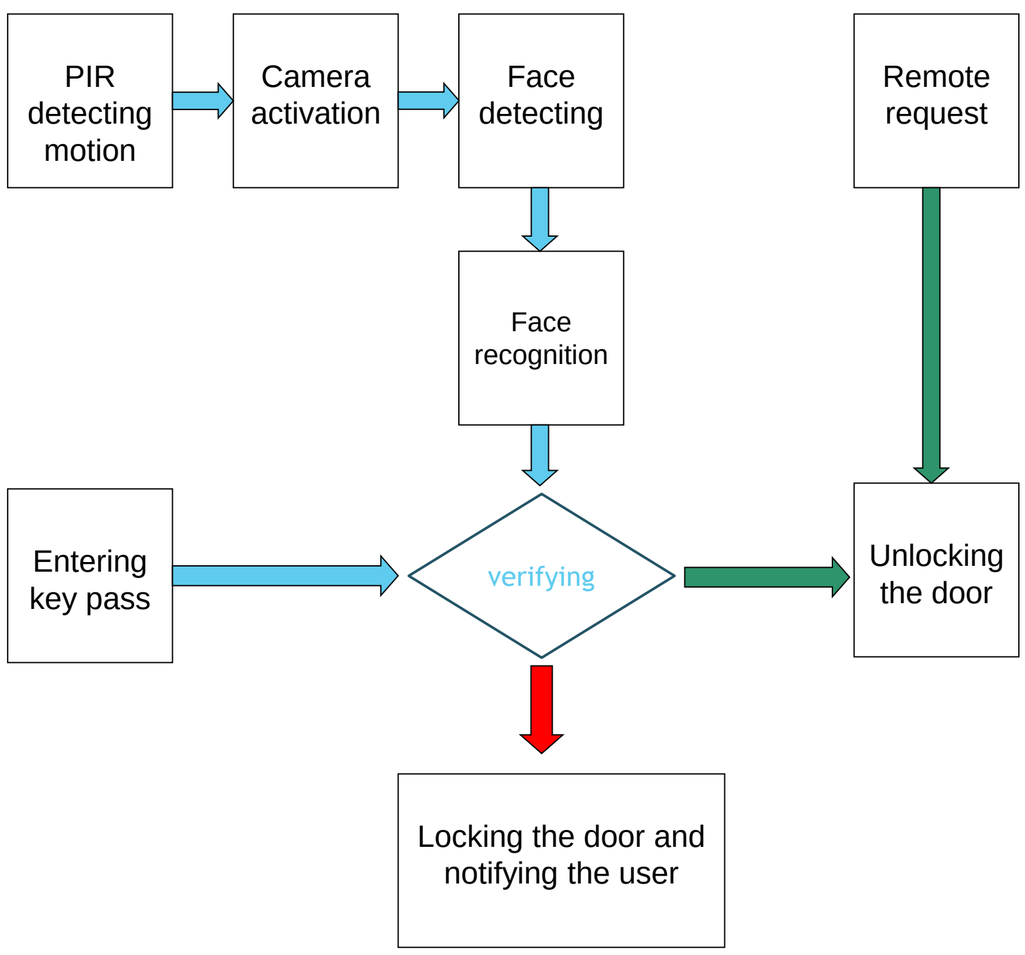
Abstract

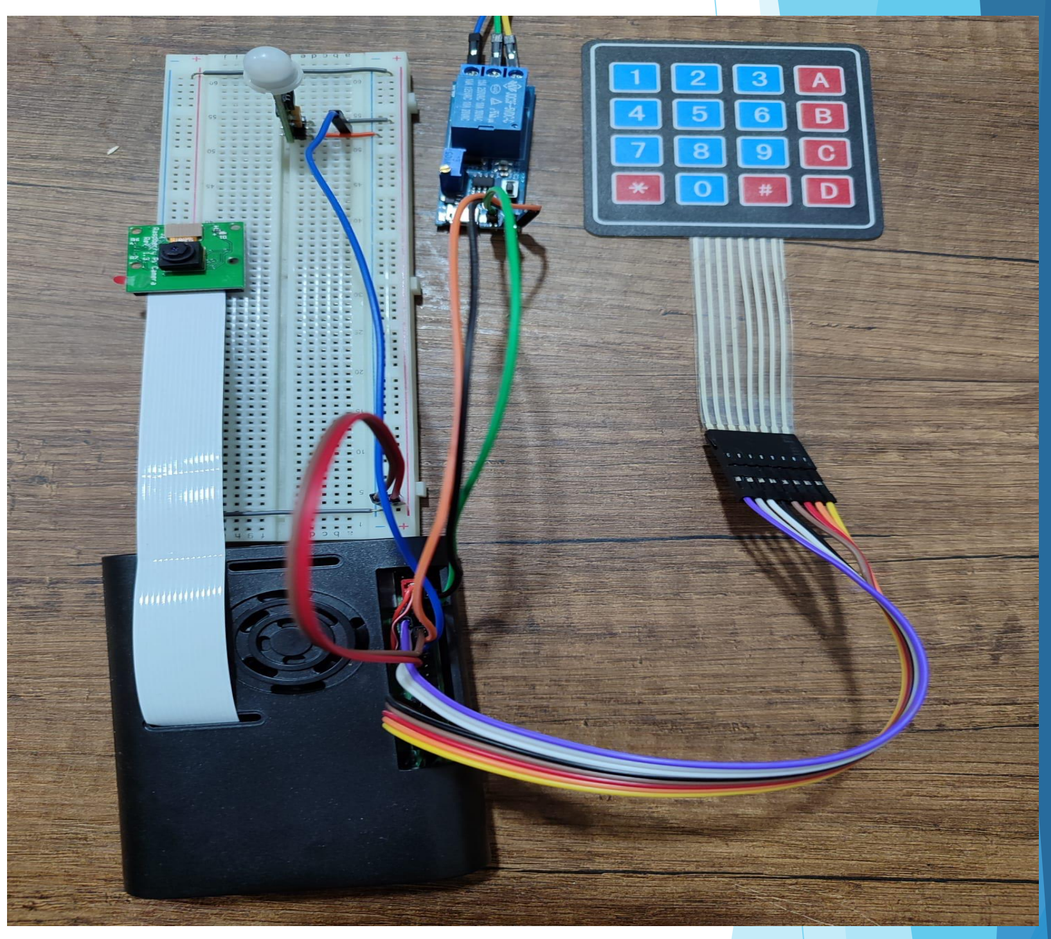
This project introduces a smart locking system designed to offer secure and convenient access control without traditional keys. The system incorporates three authentication methods: passcode entry via a keypad, remote control through a web application, and facial recognition via camera integration. Each method provides users with a modern and efficient means of accessing the locked area.

Door Flow Chart



Main Components

- Raspberry PI 4
- Camera
- Keypad
- PIR sensor
- Relay
- solenoid lock



Conclusion

This project aimed to implement a sophisticated Smart Door Lock system leveraging the Raspberry Pi 4 as an on-board logical unit and accompanied by a user-friendly web application. The system offers three distinct modes of operation: facial recognition via the Raspberry Pi camera, keypad password input, or direct control through the mobile application for locking and unlocking the door. In scenarios where user verification fails, the system automatically locks the door if left unlocked and notifies the user of potential intruder activity. This multifaceted approach ensures both security and user convenience, catering to various preferences and circumstances.

References:

•Md. Nasimuzzaman Chowdhury, Md. Shiblee Nooman, SrijonSarker, “Access Control of Door and Home Security by Raspberry Pi through Internet”, International Journal of Scientific & Engineering Research, Volume 4, Issue11, November-2013 ISSN 2229-5518.

•Howse, Joseph, and Joe Minichino. *Learning OpenCV 4 Computer Vision with Python 3*. 3rd ed. Packt Publishing, February 20, 2020. ISBN-10: 1789531616, ISBN-13: 978-1789531619.

•https://github.com/raspberrypi/picamera2