WEPI LOCK

(web enabled pi lock)

Overview:

We plan to implement a front door smart lock for the Electronics Club. It verifies valid entries and logs the data related to the entering users in a MySQL datababse on a secure website.

Features:

- Barcode reading of institute ID card data to verify a valid student.
- Data logging of users on secure website.
- Snapshots of entry scene while door remains open.
- Guest access request on touchscreen module with special message and contact details of coordinators/ secretaries
- Speaker alarm when door remains open for too long
- Electromechanical lock with manual backup system in case of power failure.

Implementation

- We will be using a Raspberry Pi b+ as main processing system
- 3 USB devices will be used- One Pi compatible barcode scanner, One HD webcam, One wifi module for net connectivity with club router
- Users will activate sytem through low range IR couplet and either request entry or enquire about contact details of club members. For request, all users will flash their ID card infront of the door mounted unit. Roll numbers read will be matched with database. Secies will gain direct entry while request will be sent for guest access users. Pi will be connected with the internet and log all data online as well as send requests. On validation door will open and Pi camera will be activated which will take multiple snapshots for 15 seconds (enough to cover entry time). Pics will be stored on SD card as well as data logged. If door is kept open too long a speaker connect with Pi's analog audio output will give a warning message.

- Electromechanical lock will consist of a servo motor which will drive rack and pinion for opening and closing of door. An additional backup manual method will be there for opening the door which can be accessed by key.

Hardware Required:

- Raspberry Pi B+
- Logitech HD 720p webcam
- Proximity sensor couplet (IR couplet)
- USB Wifi module
- Pi compatible TFT touchscreen
- Pi compatible barcode reader
- Analog audio speaker
- Servo motors
- Rack and pinion arrangement
- Other mechanical hardware

Available at adafruit.com and sparkfun.com

References

https://www.youtube.com/watch?v=_rMIEVpJ9QI

https://www.indiegogo.com/projects/canary-the-first-smart-home-security-device-for-everyone

Role of each Team Member:

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