Home Automation

Introduction-

The popularity of home automation has been increasing greatly in recent years due to much higher affordability and simplicity through smartphone and tablet connectivity. The concept of the "Internet of Things" has tied in closely with the popularization of home automation.Through the integration of information technologies with the home environment, systems and appliances can *communicate* in an integrated manner which results in convenience, energy efficiency, and safety benefits.

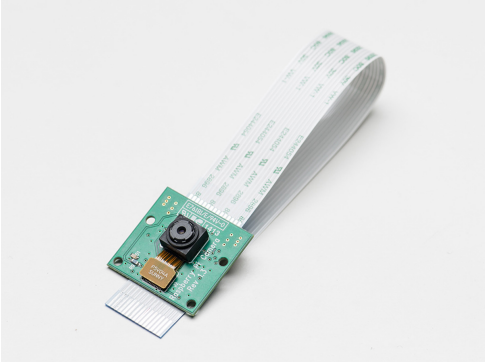
Brief-

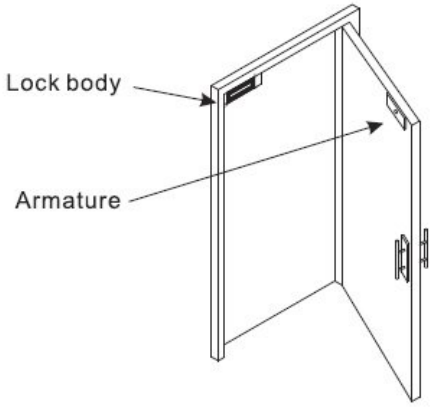
We want to make an home automated system(for fan,door locks etc) which can be controlled using an android mobile. In the first stage of the project, we would make door lock using the normal transmitter and receiver circuits but we will give the input to the remote using an android phone.
In second stage we will interface our android phone with live feeds of raspberry camera on the same android app to know whose outside the door.Finally we would try to make it more user friendly.
For automated door lock, a fail safe electromagnetic lock will be used.

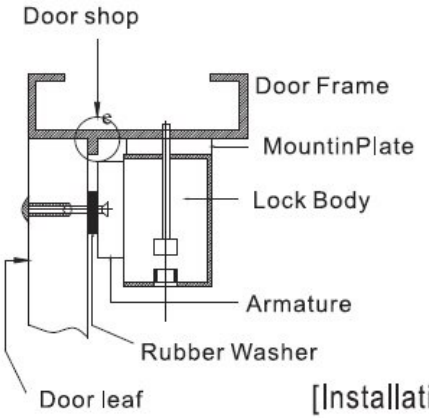
Components-

1. Arduino
2. Electric Door Strike
3. Bluetooth Module.
4. Power Supply (Required voltage and amperage differs among different door strikes/locks)
5. TIP120 Transistor
6. 1N4001 Diode
7. Hookup Wire
8. Solderless Breadboard
9. An Android phone (optional, considering that there are lots of devices you could use to send serial data to our bluetooth modem including Iphones, computers, and other Bluetooth devices)
10. Raspberry pi camera.

May include other components according to need.


Raspberry pi camera





[Installation diagram]

References-

http://www.intorobotics.com/3-possible-ways-real-time-video-streaming-camera-android-device/
tutorials to connect raspberry pi to android etc.
http://blog.oscarliang.net/raspberry-pi-arduino-connected-i2c/ - How to connect Rasberry pi to anduino
http://blog.miguelgrinberg.com/post/stream-video-from-the-raspberry-pi-camera-to-web-browsers-even-on-ios-and-android
http://stackoverflow.com/questions/2550847/streaming-video-from-android-camera-to-server
http://www.instructables.com/id/Romote-Home-Automation/step35/Electronic-Door-Strike/

Timeline-

Week 1-
Talk to seniors and mentor, decide plan of action and the required materials.Simultaneously learn android,arduino etc required softwares.
Week 2 - 4 -
Programming of the interface arduino programming for raspberry to execute the live video feed feature.
Mechanical design of lock.
Week 5 & 6 -
Putting together the assembly and fixing the bugs.

Costs of components -

Raspberry camera pi - Rs. 2390/- https://www.crazypi.com/Wireless-Usb-security-camera-raspberry-pi
Arduino - Rs. 1575/- http://www.simplelabs.co.in/content/arduino-uno
Bluetooth Module - Rs. 600 approx
Breadboard, Transistors, Diodes, Hook up wire - Rs. 200/- http://www.electroncomponents.com/Breadboard-GL
http://www.electroncomponents.com/Hookup-Wire-22Gauge-Solid-G

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