FINAL REPORT

**Security system scaled down on a breadboard.**  
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Purpose & Design Specifications

Target

SUMMARY

We have created a security system on a small scale. There is live monitoring via a 0V7670 camera connected to our Arduino. Then, there is a doorbell (pushbutton) which turns on a bell (buzzer) on the first click and in case the receiver misses it, it also sends a notification to the client/owner. We also added an Ultrasonic Sensor which detects when the door is opened and sends a mail to the client/owner. A notification is also sent along with the mail. We also created a Webserver connected to an LED through our Wi-Fi Module by which we can manually control the LED in case of less brightness and it is getting hard to monitor through our camera.

Price: +- 50 euro  
Lifespan: Several Years

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1. **WHEN A PERSON IS NEAR THE DOOR, LIVE MONITORING OF THE PERSON CAN BE DONE VIA THE CAMERA INSTALLED IN OUR PROJECT**

THIS IS DONE USING AN OV7670 CAMERA CONNECTED TO OUR ARDUINO UNO.

THE MONITORING IS DONE VIA A SERIAL PORT READER

1. **WHEN THE PERSON PRESSES THE DOORBELL, A BELL GOES OFF. IN CASE YOU MISSED THE BELL, A NOTIFICATION IS SENT TO YOUR PHONE ON THE SECOND PRESS.**

A PUSHBUTTON IS USED AS A DOORBELL.THE CODE IS CONFIGURED IN A WAY SUCH THAT THE BUZZER GOES ON THE FIRST PRESS ,BUT WHEN THE BELL IS PRESSED AGAIN THE BUZZER GOES OFF AND NOTIFICATION(AS SHOWN) IS SENT TO YOUR PHONE.

1. WHEN THE DOOR IS OPENED, A MAIL IS SENT TO YOUR E-Mail followed by a notification. THE MAILS ARE STORED IN A SEPARATE LABEL AND INBOX.

OPENING OF DOOR IS DETECTED BY AN ULTRASONIC SENSOR (USED FOR MEASURING DISTANCE) WHICH DETECTS THAT THE DOOR HAS MOVED MORE THAN ITS THRESHOLD DISTANCE.A MAIL IS SENT THEN USING BLYNK LIBRARY (EXPLAINATION IN CODE COMMENTS).A NOTIFICATION IS ALSO SENT IN CASE YOU MISSED THE MAIL. THE MAIL IS THEN STORED IN A DIFFERENT INBOX CREATED MANUALLY BY US IN ORDER TO SEPARATE THE DOOR UPDATE MAILS FROM NORMAL MAILS.

1. In case, monitoring via the camera is difficult due to lack of BRIGHTNESS OR ILLUMINATION, WE MADE A Website THROUGH WHICH YOU CAN MANUALLY CONTROL A Light PLACED NEXT TO CAMERA

SINCE THE OV7670 IS RUNNING ON A REALLY LOW POWER SUPPLY, THE IMAGE QUALITY CAN BE REALLY BAD IN LOW BRIGHTNESS DUE TO WHICH WE ADD MANUAL CONTROL TO AN LED THROUGH A WEBSERVER.THE WEBSERVER ALSO TELLS THE CURRENT STATE OF THE LIGHT.THIS WEBSERVER WAS MADE BY OUR TEAM ON THE WIFI MODULE WEMOS D1.

# Work Breakdown Structure (WBS)

**1. Configuring Camera 0v7670and Serial Port Reader 1 week**   
  **2. Programming Wemos D1 code 5 weeks**

*Ultrasonic and BLYNK Configuration (EMAIL SMTP) 1 week*

*Pushbutton and buzzer double variable configuration 2 weeks*

*Making a Webserver for Led and Website for Poster 2 weeks*

**3. Testing and Troubleshooting Hardware and Software 2 weeks**

**4. Fixing Minor Software and Software Issues 1 week**