EC 544 Project

Smart Doorbell

|  |  |
| --- | --- |
| Team Member | Email Address |
| Qianhao Liulin |  |
| Ziyu Zhao | zepher@bu.edu |

1. Introduction

We want to build a smart doorbell for modern family which is capable of automatically open the door for friends and family members and send alerts to the user if their home is visited by strangers. Our idea is that use a embedded system to capture and preprocess the photo of visitor, then send the photo to a web server which will classify whether this visitor is permitted to enter, if so, activate the door, if not, record this visit and send alert to the user, and the user could proceed with further operations such as call the police or simply keep the door closed.

2. Resources

Pi board, freedom board, Python 3.7, OpenCV, Tensorflow, Facebook account…

3. Technical Risk Areas & Risk Management

1. Image caption and processing using camera and Pi board ,fail to configure camera and Pi
2. Image quality is too low for classification
3. Image classification with Python and Tensorflow, fail to effectively to classify input image
4. Fail to construct webserver to handle requests and send response to fulfill the requirement
5. Fail to accomplish communication between Pi, freedom board, and webserver

4. Technical Approach

1. Capture images using camera and Pi board
2. Transmit image from pi board to web server
3. Process the image in the server, send the response back to the pi board,
4. Activate the door or send alert to the user

5. MileStones

1. Configure the camera and Pi to capture, preprocess, and store the images
2. Construct the webserver which is capable of handling requests from the Pi and process, classify received image
3. Make sure the server could send the response back to the Pi board
4. Pi board send activate signal to the door and send fail to recognize signal to the server