



**SMART LOCK**



Introduction



General Information



Temporary Visitor  
Authentication Demo

Facial Recognition &  
Lock Device Demo



Event Logging &  
Stranger Reporting  
Network Demo



# TEMPORARY VISITOR AUTHENTICATION



71084cf9-4e42-4055-b952-f9017efac359

## Visitors

Add Visitor

Clear

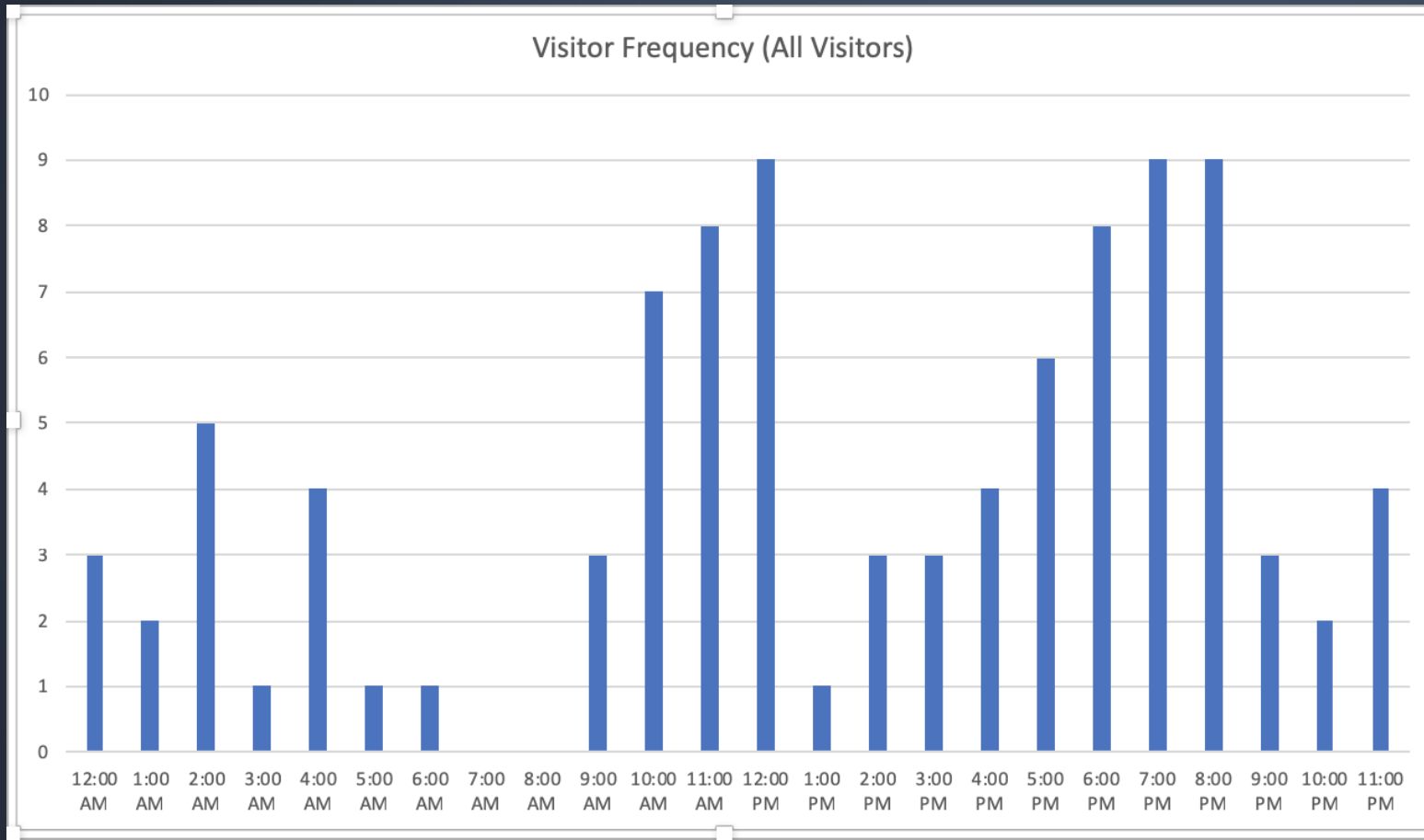
**Fredd** 1909294305

C

X



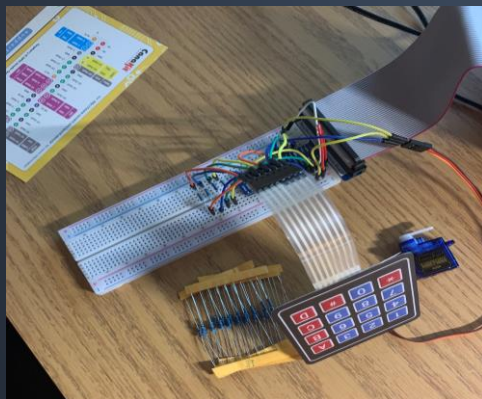
# EVENT LOGGING, S.R.N., & DATA VISUALIZATION



django  
**REST**  
framework



# FACIAL RECOGNITION & LOCK DEVICE



Feature Map Creation



HOG  
Face Detection

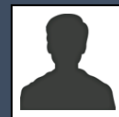


RESNET

Feature Vector



Recognition



HAAR  
CASCADE  
Face Detection  
(Using HAAR  
Features)

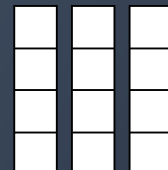


RESNET

Feature Vector



Classified



Calculate Vector  
Difference





# AUTOMATED TESTING OF DETECTION

```
pi@raspberrypi: ~/Desktop/pi-face-recognition/detectionTest
File Edit Tabs Help
Tested image 4979 / 5000 ... Success : 88.53999999999999% ...
Tested image 4980 / 5000 ... Success : 88.56% ...
Tested image 4981 / 5000 ... Success : 88.58% ...
Tested image 4982 / 5000 ... Success : 88.6% ...
Tested image 4983 / 5000 ... Success : 88.62% ...
Tested image 4984 / 5000 ... Success : 88.62% ...
Tested image 4985 / 5000 ... Success : 88.64% ...
Tested image 4986 / 5000 ... Success : 88.660000000000001% ...
Tested image 4987 / 5000 ... Success : 88.68% ...
Tested image 4988 / 5000 ... Success : 88.68% ...
Tested image 4989 / 5000 ... Success : 88.7% ...
Tested image 4990 / 5000 ... Success : 88.72% ...
Tested image 4991 / 5000 ... Success : 88.74% ...
Tested image 4992 / 5000 ... Success : 88.75999999999999% ...
Tested image 4993 / 5000 ... Success : 88.78% ...
Tested image 4994 / 5000 ... Success : 88.8% ...
Tested image 4995 / 5000 ... Success : 88.82% ...
Tested image 4996 / 5000 ... Success : 88.84% ...
Tested image 4997 / 5000 ... Success : 88.86% ...
Tested image 4998 / 5000 ... Success : 88.880000000000001% ...
Tested image 4999 / 5000 ... Success : 88.9% ...
Tested image 5000 / 5000 ... Success : 88.92% ...
Done.
pi@raspberrypi:~/Desktop/pi-face-recognition/detectionTest $
```

Testing dataset courtesy  
of University of  
Maryland (umdfaces.io)

