APPENDIX

IMPORT NECESSARY MODULE

```
import tensorflow as tf
from scipy import misc
import cv2
import numpy as np
import facenet
import detect_face
import os
import time
import pickle
```

TRAINING DATASETS

```
model = SVC (kernel='linear',probability=True)
model.fit(emb_array,label)
class_names = [cls.name.replace('_',' ')for cls in img_data]
```

SAVING DATASETS

```
with open(classifier_file_name,'wb') as outfile:
  pickle.dump((model,class_names),outfile)
return classifier_file_name
```

OPEN CAMERA

```
video_capture = cv2.VideoCapture(0)
```

DRAWING RECTANGLE AND GIVE TEXT

```
cv2.rectangle(frame,(bb[i][0],bb[i][1]),(bb[i][2],bb[i][3]),(255,0
,0),2)

      text_x = bb[i][0]

      text_y = bb[i][3] + 20

      print('Result Indices: ', best_class_indices[0])

      print(Labels)

      for H_i in Labels:

          if Labels[best_class_indices[0]] == H_i:

             result_names = Labels[best_class_indices[0]]
```

```
        cv2.putText(frame,result_names,(text_x,text_y),
cv2.FONT_HERSHEY_COMPLEX_SMALL,
1, (0, 0, 255), thickness=1, lineType=2)
```

SHOW FRAME

```
cv2.imshow('Video',frame)
```

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Report #10937696

1. Introduction1.1 Background Face recognition are very important nowdays, we can find it in our daily routine like our phone. They re very usefull to unlock our phone using face detection, and now there are home security using this face detection. Our face have major role for our social interaction, we can know many kind of faces. As we know, today we use camera as a security camera that we place at our house (at many spot). This CCTV very useful to know who is the people that detected by the camera, as a young man we can know who are these people but for our mother or elderly they not as fast as the youngster cause of their vision. That s why I want to help not only the elder to know by recognize the face that already detected from CCTV, but they can know that the person are family members or not. One of the solution to complete by using Convolutional Neural Network (CNN). This is part of Deep Learning that useful to check facial similarity. Dataset that use for training the image about 500 image that contains stranger faces and family member faces. This are the minimum amount For the final result, this research want to give description for the family member and stranger that catch by the security camera. This is the best solution because it make the elder easier to know who are the family member from security camera detection. Problem FormulationBased on the