face_rec package documentation

What the package does ?

The package monitors webcam stream for faces. If a face is detected for more than 20 frames then the closest face is determined (in case of multiple faces in frame) and runs face recognition on that face. If the face is of a person we have trained for then it outputs the label of the person, if the face is not trained for then it outputs **Unknown**. Also if no face is present in frame it outputs **None**.

If the face moves out of field of view of camera, then corresponding rotation command is sent to the neck motor.

Pre-requisites:

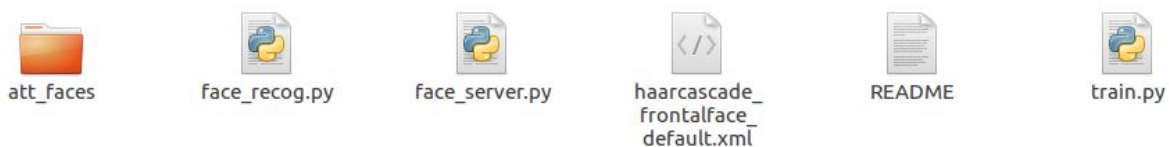Make sure opencv is installed with python support. You can check by firing python in terminal and importing cv2

```
system8@asimov:~$ python
Python 2.7.12 (default, Nov 20 2017, 18:23:56)
[GCC 5.4.0 20160609] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> import cv2
>>>
```

Package contents:

Copy the face_rec package into you catkin workspace and ensure the following directories are present inside face_rec package.

include   scripts   srv   CMakeLists.txt   package.xml

The code is present inside the scripts folder. The srv folder consists of service file definition. The directories inside scripts folder looks like below :

att_faces   face_recog.py   face_server.py   haarcascade_frontalface_default.xml   README   train.py

face_recog.py :
Consists of the python code for training and face_recognition.

face_server.py:
Consists of code the defines the server which subscribes to the topic /face_rec, in which the label of the person identified by face_recog.py. It publishes None if no face is detected, Unknown if face is of unrecognized person and if the face is of a person whose is present inside att_faces directory then that label is published.

train.py:
This code creates training images for face_recog.py to train. To call the code use : **python train.py name_of_person**. It collects 50 sample images from the webcam and close automatically. When the code is running, move the head around but ensure that eyes can be seen throughout .A directory will be created in att_faces with name_of_person
Which contains the training samples. There should be fifty images. Open the directory and check that all 50 images contain the face of the person.