Study report 2:

**IOT**

As we are shifting Real time OS we need find some Real time OS like RTOS and Nuttex.

For nuttex setup we need Linux Os system. But we may setup nuttex using windows operating system too. In this link step by step process are given, <https://acassis.wordpress.com/2018/01/10/how-to-build-nuttx-on-windows-10/>

Here is code for mqtt server or broker. <https://github.com/gourishbiradar/MQTTCppPerformance/blob/master/server/Server.cpp>

Some important link:

<https://github.com/jerryscript-project/iotjs/wiki/Build-for-STM32F4-NuttX>

<https://www.hackster.io/Sparky/freertos-on-stm32f103c8t6-1a2413>

<https://www.youtube.com/watch?v=wxjEPFVaBcU>

**FACE DETECTION AND RECOGNITION**

For face detection I have implemented two model

1.Harcascade classifier

2.MTCNN

Both model work on real time. Which input data feed from webcam video frame and output shows as bounded box with faces that detect using our classifier.

For recognition I have use OpenCV face recognition library and also custom-made model. Also pipelined with Harcascade classifier. I am also working on MTCNN for pipeline but there is some dimensional issue. For those reason I can’t combined them. Soon it will be solved.

I have made my own model framework using VGG16 and RESNET50. those model gives me 100% accuracy while applying neural network and SVM classifier. But it seems not good though it gives 100% accuracy. Its call dataset overfitting. Because dataset is same when it tests the model with test data. I need various types of picture to solve overfitted data. I am working on that too. Bellow I have given some flow diagram of my model and how they work.

Face Detection and Recognition System

**Output Frame**

**Video**

**Face Detector**

**Image Frame**

**Decision**

**Recognizer**

**Recognize**

**Model**

**Training Data**

**Feature Extraction**

**Processed Image**

**Raw Image**