horizontal line

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IOT Greenhouse

**26th May 2016**

# OVERVIEW

This project we are monitoring and controlling a Greenhouse . By analyzing monitored data and digital image System will control the Greenhouse.Here we have developed a working prototype with one plant.

Here our main goals were Light and watering control,Temperature and humidity Controlling , Image processing to monitor leaves of the and infections , Automatic management and and remote monitoring. Client can have latest status of the greenhouse . Here we have used MQTT protocol because it is lightweight messaging protocol . Here each sensor has topic. As an example humidity sensor has topic greenhouse/1/hum other sensors also have. So here Arduino UNO + WIFI shield is acting as a MQTT client and publish this sensor data to the related topics . Then in Raspberry PI there is MQTT server and from the PI data will be put into a Graphical user interface .So any user with proper authentication can connect to the IP of the raspberry and get these data.

Then analysing these data set (temperature,humidity,soil moisture,light intensity) we are controlling the water pump,fan and light. And also here we have image processing part with raspberry PI camera . For now we have developed to identify yellow patches of the plant and to identify edges. By looking this images we can send alert signals to the user about the status of the plant (Infections,insets etc ). In future we are planning to develop a good algorithm to analyse the plant leaves and identify various diseases with the plant. And also integrate machine learning to the greenhouse to make a stable conditions in the greenhouse .

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