Internet of Things: Architecture and Programming

2017 - Demo Exercise 5

In this demonstaration, you will work with Esp8266 thing dev board. (https://www.sparkfun.com/products/13711)

Using this tiny board, you can read the sensor data, and send it to WiFi. This board can be configured as both access point, or client. You will need to install the neccesaary libraries.

Change the switch on the board to ON. In the tolls->board, make sure that you have selected the correct board. (as usual, check the port number as well). You can follow this link for troubleshooting, run the blink example : https://learn.sparkfun.com/tutorials/esp8266-thing-development-board-hookup-guide/setting-up-arduino

Note: To start with a new board, try to run the simplest example (usually blink LED). Therefore you can make sure that your computer, IDE, and board is set up correctly.

ESP8266 thing dev board as work station:

At first, register the MAC address of your dev board in http://www.oit.uci.edu/mobile/registration/ to get access to internet. To get the MAC address of your board, you can run the following code:

Note: Don't forget to remove the mac address at the end of quarter. So, register it with proper comment.

```
#include <ESP8266WiFi.h>

 void setup(){

   Serial.begin(115200);

  delay(500);

  Serial.println();

  Serial.print("MAC: ");

  Serial.println(WiFi.macAddress());

 }

 void loop(){}
```

run the exmaple given in folowing link:

https://learn.sparkfun.com/tutorials/esp8266-thing-development-board-hookup-guide/example-sketch-web-server

You have to set “ WiFiSSID” to "UCInet Mobile Access", and “ WiFiPSK” to the “”(empty). After uploading the sketch, in serial monitor, the ip address of your server will show up, e.g. ”IP address: 169.234.40.241”

Brows for *Ip_address*/read in your cell phone browser, which is conencted to the WiFi. You should see the value of digital and analog pin. In addition, you should be able to change the status of the board’s LED.

ESP8266 thing dev board as an Access Point:

In the previous setup, you need an access point to connect your esp8266 to it. What if you dont have an access point? ESP8266 thing dev can be configured as an access point as well. Follow the example to see how it works. Note that in this setup, you wont need to connect to any access point, so you wont need to set the “ WiFiSSID” to "UCInet Mobile Access". Please change you wifi ssid to prevent conflict.

Connect to your wifi using cell phone. And browse for ”192.168.4.1/read”. You should see the value of analog and digital pins.

You can connect a tempreture and light sensor to the board, and publish the sensor data in website. Remember that this board has to run many stuff in background, including running TCP/IP stack. So, dont use this board for running complicated programs.