Assignment 11

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Title:

Create a simple web interface for Raspberry-Pi/Beagle board to control the connected LEDs remotely through the interface.

Aim/Objectives:

- To understand the working of Raspberry Pi Connectivity with cloud

Software:

- Raspbian OS (IDLE)

Theory:

- The IoT platforms are suites of components those help to setup and manage the internet connected devices.
- A person can remotely collect data, monitor and manage all internet connected devices from a single system.
- There are a bunch of IoT platforms available online but building an IoT solution for a company is all depend on IoT platform host and support quality.

IOT Cloud Platforms

- Kaa IoT Platform
- SiteWhere: Open Platform for the Internet of Things
- ThingSpeak: An open IoT platform with MATLAB analytics
- DeviceHive: IoT Made Easy
- Zetta: API-First Internet of Things Platform
- DSA: Open Source Platform & “Toolkit” for Internet Of Things Devices
- Thingsboard.io Open-source IoT Platform
- Thinger.io: The Opensource Platform for Internet of things
- WSo2- Open source platform for Internet of Things and mobile projects

Safety precautions:

- Raspberry-Pi provides 3.3V and 5V VCC pins Raspberry-Pi operates on 3.3V.
- Various sensors and actuators operate on different voltages.
- Read datasheet of a given sensor or an actuator and then use appropriate VCC pin to connect a sensor or an actuator.
- Ensure that signal voltage coming to the Raspberry-Pi from any sensor or actuator does not exceed 3.3V.
- If signal/data coming to Raspberry-Pi is greater than 3.3V then use voltage level shifter module to decrease the incoming voltage.
- The Raspberry-Pi is a costly device, hence you should show the circuit connections to your instructor before starting your experiment.

Procedure:

- Write the program as per the algorithm given.
- Save the program
- Run code using Run module.

Observation:

- Observe the output on console.

Code:

```
import httplib,urllib
import time,Adafruit_DHT
key='8QPPQALZTUZUZ7IS'
while True:
    h,t=Adafruit_DHT.read_retry(11,4)
    print "temp:",t
    param=urllib.urlencode({'field1':t,'key':key})
    headers={"content-typZZe":"application/x-www-form-
urlencoded","Accept":"text/plain"}
    conn=httplib.HTTPConnection("api.thingspeak.com:80")
    try:
        conn.request("POST","/update",param,headers)
        response=conn.getresponse()
        print response.status,response.reason
        data=response.read()
        conn.close()
    except:
        print "connection Failed"
```