IOT and RaspberryPi:Report1

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I. Notable facts

- Programming languages do not outweigh each other as far as RaspberryPi concerned. So I go for Java since I am very familiar with it. And I will use PI4J library because there is no other suitable options.
- The less electronic works preferred, the more money should be payed for buying ready circuits and HATs[1] which leads to saving considerable amount of time.

II. Foreseeable moves and tasks:

- Firstly, I need to master all examples provided in PI4J website completely with adequate equipments(pwd is essential one).
- In the next stage I have to connect either a 'USB webcam' or 'RaspberryPi original camera' to RaspberryPi. Then capture video and image with it and save results in common media formats.
- The following step is to connect wide range of sensors to RaspberryPi and provide their outputs in a way that human can comprehend. Sensors like motion detection, temperature, humidity and etc. Taking all IOT books I got into account is essential in this stage.
- Having done previous tasks, it is time to plan for how devices should communicate. Communications include:
  - RaspberryPi with Server (or cloud)
  - RaspberryPi with RaspberryPi (distant or close)(mesh network)
  - RaspberryPi with Ardiuno(Ardiunos as working and sensing nodes, if any needed)
  - Ardiuno with Ardiuno (Bluetooth mesh network)
  - RaspberryPi with sensors
  - Ardiuno with sensors

  And some useful protocols are:
  - HTTP
  - MQTT
  - SERIAL
  - I2C
  - GPIO
  - ZIGBEE
- Currently, final step is to find out the basic requirements of entering to IOT world while comparing different subjects in order to choose my project chief subject.

[1] ready circuits locating on the top of RaspberryPi and connect to it directly by GPIO

A. Raised questions

1-How to up a running a Mesh network with WIFI?

References

[1] John C. Shovic. *Raspberry Pi IoT Projects*. apress, 2016.

[2] Simon Monk. *Raspberry Pi Cookbook*. OREILLY, 2016.

[3] Matthew Poole. *Building a Home Security System with Raspberry Pi*. PACKT, 2015.