**Introduction:**

I propose to build an Automated Porch Light System that will turn on/off when required. My wife and I have varying schedules with work and outdoor based exercise and we like to have the porch lights on for when we are out as the front driveway is quite dark. We do not like leaving the lights on indefinitely due to running costs and environmental factors. So I am proposing a system that will hopefully serve three functions:

1. I would like to incorporate a door open sensor that turns on the lights when activated. This should turn off automatically after a period of time unless conditions mentioned below are activated.
2. Once the light has been switched on I would like to detect if a member of the household has left the house for a period of time and to keep the lights on until the return of the individual. If time allows I hope to upgrade this to a system that will access our location data from our personal devices and to have the lights switched off/on based on the users location. If over 500 meters away from the house turn off the lights and if under the 500 metres to switch on the lights for a welcoming light home.
3. Lastly I would like to implement a motion sensor that switches on the lights automatically in the case of a visitor calling. They would turn off automatically after a set period of time

**Proposed technologies:**

Communication:

Wi-fi/Bluetooth for communication between devices.  Cellular for communicating location based data.

MQTT for use in transmitting daily sunrise/sunset time data to the RaspberryPi to determine when the lights should be activated.  HTTP request/response for activating lights when a certain condition is met.

Devices:

Use a Raspberry Pi to set up a web server that connect the sensors and lights, Philips Hue smart spotlights, Philips Hue outdoor motion sensor. Hive door sensor.

Programming languages:

Python, HTTP get request, JavaScript json notation to gather sunrise/sunset data.

**Proposed tools:**

Use Wia or Thingspeak cloud based IOT platform to store and retrieve data from devices and act on them. Look into using IFTTT to create chains of conditional statements triggered by changes that occur from the devices output i.e. send notification via tweet or email of motion sensor activity.