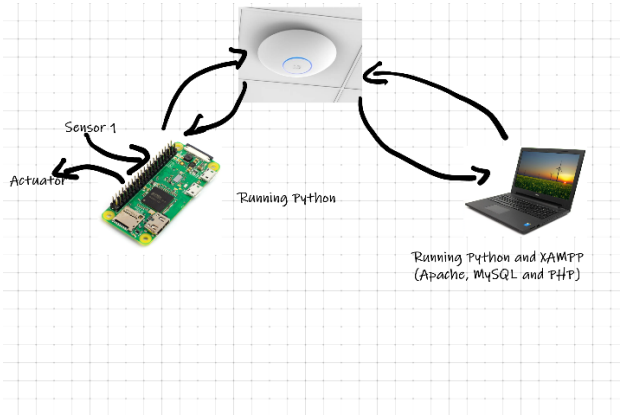

Figure 1: Simple diagram NP project.

For this project, you will designate the Raspberry Pi Zero W to measure data from one sensor (moisture, PIR, camera, ultrasound, LDR, etc) send its data (at 1-minute intervals) via WiFi to an online webserver, which stores the data in a MySQL database or in a file and displays them using a simple table on a webpage. The data will be online on a live E2STEM Intranet webpage which means, it can be viewed from any device inside E2STEM. When the sensor data is received, RASPBerry Pi Zero W will send data to one actuator (relay, alarm, email, etc). In case you don't have any actuator in mind, you can turn on/off (toogle) one led everytime you receive data from the sensor. See Figure 1: Simple diagram NP project. The assessment is divide in 10 parts (in red). Each part has 10 marks. Total marks are 100.

1. Raspberry Pi Zero W with wi-fi connection
    - Running VNC
    - Running Python
    - Accesssing General Purpose Input/Output pins (GPIO)
    - Reading sensor using RaspBerry Pi Zero W GPIO (1)
    - Send sensor data and datetime over TCP/IP socket communication to your Laptop or Desktop (2)
    - Receiving command from your Laptop or Desktop over TCP/IP socket communication using Python and command your actuator (3)
    - Command one actuator using RaspBerry Pi Zero W GPIO (4)
2. Laptop or Desktop
    - Running XAMPP
        - Apache Web Server
        - MySQL Server
        - PHP
    - Running Python
    - Receive sensor data and datatime over TCP/IP socket communication from RaspBerry Pi Zero W using Python (5)
    - Store sensor data and datatime in a persistent media (MySQL or local file) (6)
    - Show sensor data and datatime in a webpage (7)
    - Send actuator data over TCP/IP socket communication to RaspBerry Pi Zero W (8)
3. Documentation (9)
    - You need to describe and explain how your system works (How to install and use it and Software Requirements Specification)
    - Limitations in your system
    - Future versions (what you can do better)
4. Github (10)
    - Upload all your source code with comments and documentation must be uploaded to your GitHub
        - Raspberry Pi Zero W Python codes (Raspberry folder)
        - Laptop or Desktop Python codes (Back-End folder)
        - Laptop or Desktop PHP/HTML codes (Fron-End folder)
        - Documentation (Doc folder)