Theme no. 2

Title

Smart Garden:

Temperature Sensor

Team members

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Content:

1. Applicability domains
    a. use-cases (minim 4, maxim 8);
        - Automatic transmission of temperature data.
    b. one of the use-cases is chosen and the system is defined in details;
        - The process to create the automatic data transmission system was achieved using an Arduino Uno board and an ESP8266 WI-FI module through which the data is transmitted to a database that filters the data and then is transmitted and displayed on the web server.
2. System definition:
    a. components that enter the system infrastructure;
        - The components used are as follows:
          - an Arduino Uno board,
          - an ESP8266 WI-FI module,
          - a TMP36 temperature sensor,
          - a laptop with internet connection,
          - a router,
          - an internet provider service,
          - host for the database and website.

b. protocols used in communication processes;

- The protocol used in communication process is HTTP, a trivial protocol, widely used. The client uses HTTP requests to obtain data from the web server through HTTP GET and HTTP POST calls.
  i. HTTP GET is a request to receive data from the server.
  ii. HTTP POST is a request to send data to the server.

c. process automation;

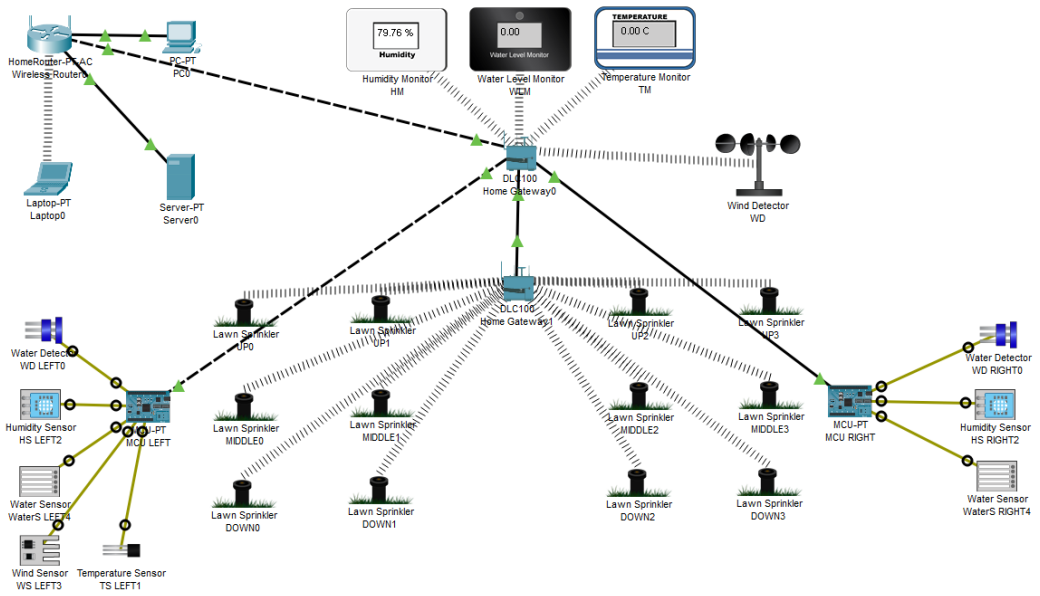
i. The automation process arises from the use of previously mentioned devices that we configure in such a way as to serve our needs.

d. estimated costs;

- The costs of the components may vary depending on inflation and the sites we buy them from. But their cost for this small project should not exceed 6000 RON. The price is high, because the cost of the host can be considerable, and a low-end to mid-end laptop can have a cost that exceeds all the other components put together.

3. Cisco Packet Tracer:

a. add a print screen of the designed architecture;

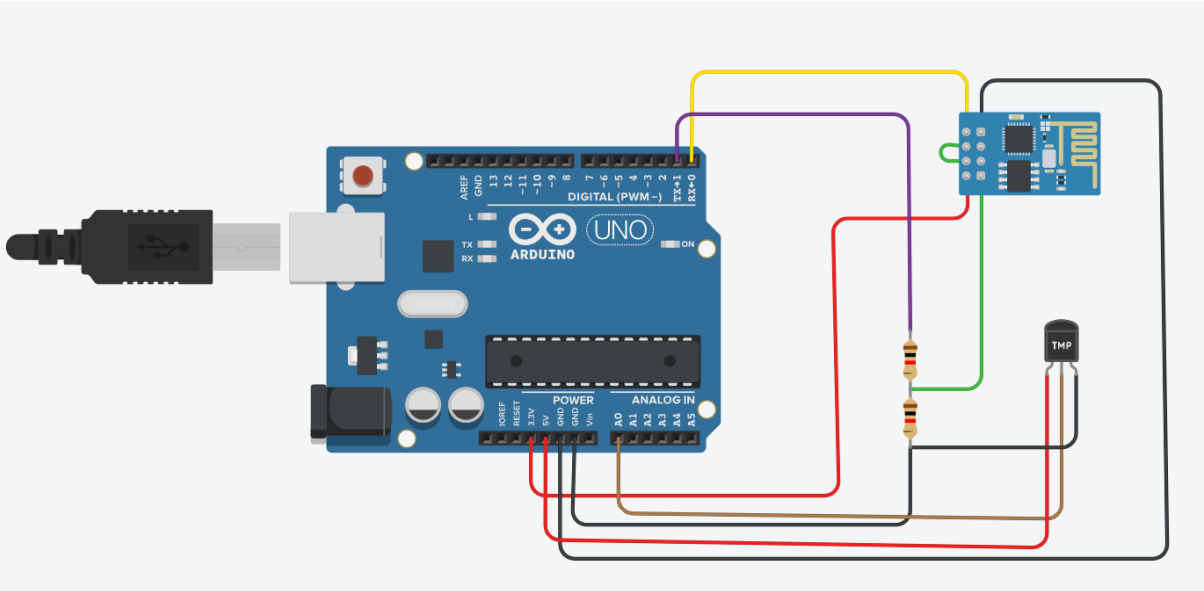


b. explain the functionalities implemented in Cisco Packet Tracer;

- The main functionality of this project is the monitoring of humidity, wind, temperature and water level in the tanks. This type of project can help vegetable growers to make more efficient the whole process of growing plants and improve the way they grow. This process is automatic and the client does not have to be present on the plantation all the time.

4. TinkerCad:

a. add a print screen of the designed architecture;



b. explain the functionalities implemented in TinkerCad.

i. The functionality of this project is to monitor the temperature to provide useful information to the user.

ii. This functionality could be achieved with the help of electronic devices and sensors that once connected to a database can be manipulated to ease the work of a person who needs such a project.

5. ThingSpeak

- We used ThingSpeak for demonstration purposes, and it is not capable of achieving too many functionalities.

- To send data from the Arduino to the server we used an API key.

- I attached a json with the data I monitored in the form.

To be considered:

- *editing will be done with the font Times New Roman, 12, Justify;*
- *the spacing between rows must be 1.5;*
- *the chapters mentioned in the table of contents are respected, and within the presentation, the chapters and subchapters must be* ***Bold****;*
- *main chapters must start at a new page;*
- *the writing must be in English;*
- *the paper must be saved and uploaded as PDF format respecting the annotation:*
    - ***Tema2_NumePrenumeMembru1_NumePrenumeMembru2_NumePrenume Membru3.pdf***