



ELECTRONICS DEPARTMENT

Faculty of Electrical & Electronics Engineering
Ho Chi Minh City University of Technology

MONITORING AND WARNING SYSTEM FOR FOREST FIRE AND DEFORESTATION

Student: Nguyen Manh Toan - 1814368

Lecture: MS. Vo Thi Thu Hong



Ho Chi Minh University of Technology

0333156352



toan.nguyenmanh@hcmut.edu.vn

INTRODUCTION



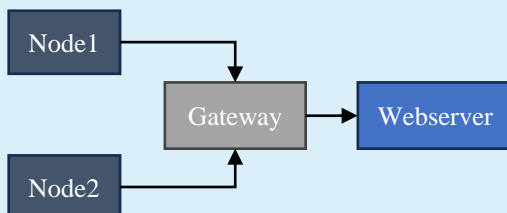
This is a project on monitoring and warning system of forest fires. By applying LoRa wireless transmission technology to promptly detect and minimize harm to the lowest level

ABSTRACT

The system includes 1 Gateway and 2 Node. Gateway are fixed in 1 place and 2 Node can move within 1-2 Km (ideal).

The Nodes will in turn collect the following parameters: Temperature, humidity, smoke, sound of sawing wood, intruders... and send it to the Gateway.

Gateway will display the parameters received from Node on Website and App for users to monitor and detect timely.



METHOD

The project uses components to collect the necessary values from the environment and use the corresponding software to load the program. Here I divide it into 2 parts: Software and hardware.

SOFTWARE



EasyEDA: schematic drawing, circuit design



Arduino IDE: Load program code for the system



Blynk: Webserver is used to monitor necessary parameters as well as emit warning events when there are abnormal signs

HARDWARE



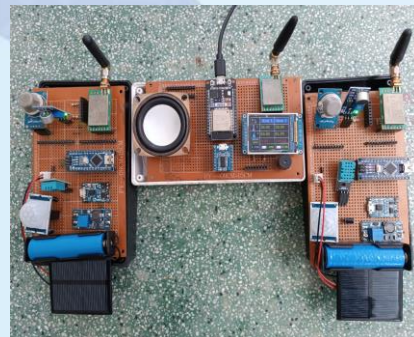
Node:

DHT11, MQ-2, Sound Sensor, PIC HC SR-501, Arduino Nano, LoRa sx1278, MT3608, TP4056, Solar panels.

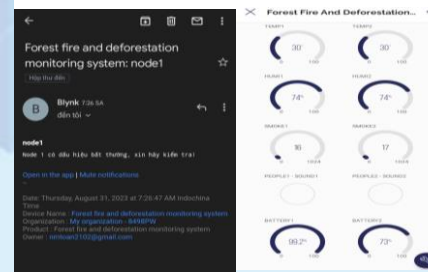
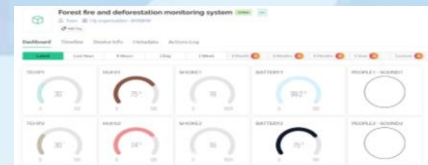


Gateway:

ESP32 Devkit V1, LCD screen, JQ6500, Speaker



RESULT



CONCLUSION

Advantage

The system works well within 1-2Km

Detects: smoke, temperature, humidity, people, sound

Users monitor on LCD, Website, App and sound warnings when there are unusual signs

Easy to use, long-lasting operation with solar batteries

Disadvantage

Limited transmission distance

The camera has not been integrated into the system to improve accuracy

The Node system cannot be automatically located

There is no notification confirming connection and connection loss

DEVELOPMENT

Integrate cameras into the system, increasing system accuracy, Application to life...

Build your own Website using Python, JavaScript...

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