IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

"RF Framework Using Cloud"

Mr.A.P.Meshram, Yugant Bawdhankar, Pooja Bhausaheb Dhondge ,Snehal Balasaheb Sonawane

Mr.A.P.Meshram,
Professor, Electronics and Telecommunication
MVP'S Karamveer Adv. Baburao Ganpatrao Thakare College of Engineering, Nashik

Yugant Bawdhankar
Student, BE Electronics and Telecommunication
MVP'S Karamveer Adv. Baburao Ganpatrao Thakare College of Engineering, Nashik

Pooja Bhausaheb Dhondge
Student, BE Electronics and Telecommunication
MVP'S Karamveer Adv. Baburao Ganpatrao Thakare College of Engineering, Nashik

Snehal Balasaheb Sonawane
Student, BE Electronics and Telecommunication
MVP'S Karamveer Adv. Baburao Ganpatrao Thakare College of Engineering, Nashik

Abstract - RF framework using cloud technology enables wireless communication between devices and the cloud. This integration allows for efficient data collection, analysis, and control of IoT devices. By leveraging the power of the cloud, RF framework enhances connectivity, scalability, and remote monitoring capabilities. It provides a robust infrastructure for various applications, including smart agriculture, industrial automation, and smart homes.

In simple terms, RF framework using cloud technology offers benefits such as improved connectivity, scalability, and remote monitoring capabilities. It allows for efficient data collection, analysis, and control of IoT devices. This integration is especially valuable for projects like smart agriculture monitoring, where real-time data and remote control are essential for optimizing farming practices.

In simple terms, using RF framework with cloud technology allows wireless communication between devices and the cloud. This helps in collecting and analyzing data from IoT devices, making it easier to monitor and control them remotely. It's like having a smart system that connects everything together, making life easier for farmers and improving agricultural practices.

***Key Words*: RF Framework, Iot Devices ,**

1. INTRODUCTION

The application of the wireless-sensing paradigm is becoming a common trend in water quality monitoring systems. In fact, a growing body of the literature has focused on developing wireless sensing-enabled monitoring systems. However, previous studies have not dealt with the radio performance evaluation of modern wireless monitoring systems deployed in urban city scenarios. The present seeks to address the radio frequency (RF) performance

evaluation for a developed modern wireless monitoring system based on the RF module. Nowadays, smart solutions for water quality monitoring are gaining importance with advancements in communication technology. To introduction of such a system paves the way for a wide range of applications such as Temperature sensor monitoring, and water flow sensor etc.

Wi-Fi module used to transmit data to an online cloud platform, providing the feature of monitoring and logging sensors data through the Internet. This study aims to examine and evaluate the radio performance. Distribution network for instance is not ensured by the office right to the customer's home. They can only install the customer's water meter at a maximum distance of 50meters from the main network. Then, the customer has the need to extend the control from his water meter to his premises.

2. LITERATURE REVIEW

1) N. Abdullah used Smart Agriculture Monitoring, It real-time data collection, remote sensing, soil moisture monitoring, crop health assessment, and automated irrigation systems. These technologies help optimize crop yield, reduce water usage, and improve overall efficiency in agricultural practices.

2) Alzain Mohamed Suliman Salih used RF Communication and IoT Paradigms System, Wireless sensor networks and RF technology allow industrial automation systems to monitor conditions over long distances and hard-to-reach places, providing real-time data on environmental conditions, machinery performance, and safety.

3) Pierre Tsafack used wireless water quality monitoring sensor, Wireless water quality monitoring sensors offer features such as real-time data collection, remote monitoring capabilities, and the ability to measure parameters like pH levels, dissolved oxygen, temperature, and conductivity. These sensors can transmit data wirelessly, enabling continuous monitoring of water quality in lakes, rivers, and other bodies of water. This helps in identifying potential pollution sources and ensuring the safety of water resources.

3. METHODOLOGY

As we know all the Iot devices work in a range of Wi-Fi (which is small). This device will work when the device (controller) is not in the range. With the help of radio frequency, we can control the appliance from a faraway distance as well. We will be connecting relays, PCB, Touch sensor, HC12 (Radio frequency chip), Node MCU , all together with the help of cables and the Wi-Fi device will be connected to the radio frequency chip and will receive and send the data to the cloud. According to the data sent and received the relays will be triggered and the action will be performed.

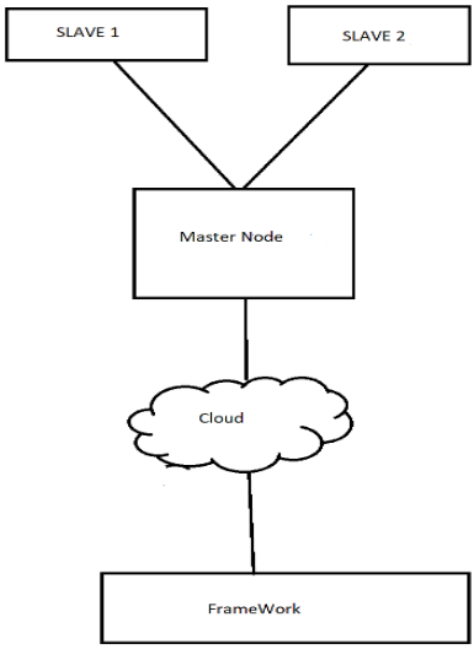

Fig. 1 Block Diagram

We have created our own framework which will make adding of the devices and sending and receiving of the instructions much easier for the user so that it can work seamlessly.

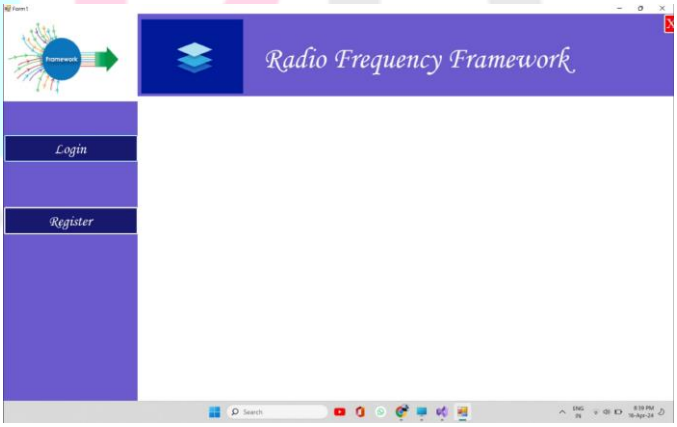

Fig. 2 Framework.

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4. APPLICATIONS

1. Garage door openers

2. Wireless alarm or monitoring systems

3.Industrial remote controls

4.Smart sensor applications

5.Wireless Home Automation

6. RF framework using cloud is to enable wireless communication between IoT devices and the cloud.

7. It allows for seamless data transfer, remote monitoring, and control of IoT devices through cloud-based platforms.

8. This integration enhances scalability, flexibility, and real-time data analysis for various IoT applications.

5. ADVANTAGES

This system is the way for a wide range of applications.
The wireless communication options for automatic reading of the short range of RF.
Secure access controls, and regular security updates.
Use in communication devices such as transmitter, receiver, mobile phone.

6. SIMULATION AND RESULT

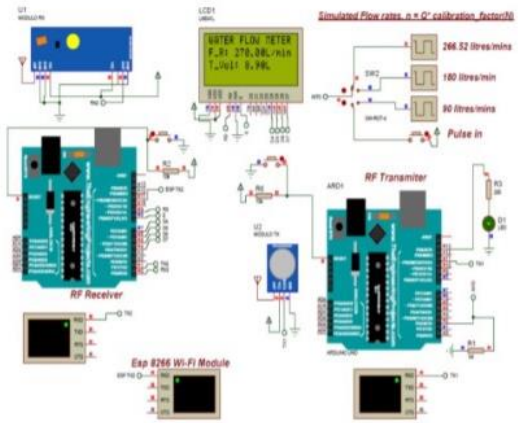

Fig. 3 Simulation

The UV sensor will be mounted on the vehicle which will rotate 90 degrees and gather information of the surroundings. It will detect the obstacles in its path. For the detection of obstacles in 360 degrees a Lidar sensor will also be mounted. Here the sensor integration part will be carried, the sensors will gather information about the surroundings and pass the information to the microcontroller. The microcontroller will then instruct the DC motors to turn the vehicle left/right accordingly. In this way the vehicle will decide its path and move forward without any difficulty.

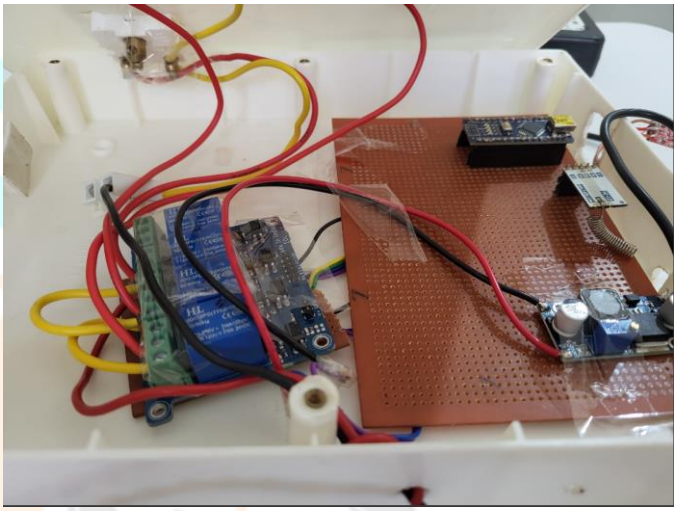

Fig. 4 Prototype

Above fig displays the prototype of the work which consists of necessary sensors, microcontroller, DC motors and batteries. This size of the prototype aids in efficient handling and better understanding of the work.

7. CONCLUSION

In simple terms, RF framework using cloud technology offers benefits such as improved connectivity, scalability, and remote monitoring capabilities. It allows for efficient data collection, analysis, and control of IoT devices. This integration is especially valuable for home appliances, where real-time data and remote control are essential.

8. REFERENCES

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