



IJIRCCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 12, Issue 5, May 2024

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.379



9940 572 462



6381 907 438



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Effluent Pipeline Clog Spotting and Dissolving Technology

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ABSTRACT: A good drainage management is a symbol of good city. Now-a-days man-holes are the main problem in the cities. All the man-holes are not in secure position. Most of the drainage are damaged condition. Because of the damaged drainage, there are chances of occurrence of accidents in the road. These damaged man-holes will be a threat to personal safety. Our project work is to design an effective accident avoid system by preventing open drainage in major cities. The sensors like tilt sensor and weight sensor used to detect the crack and the damage in the drainage cover and then the information will be sent to the authority of the corporation department and the councillor of the area where the drainage is present. The control and the maintenance are made through Internet of Things. The implementation of this project will be very useful to the society.

KEYWORDS: Arduino uno, esp 32, gps module, temperature, gas, water and ultrasonic sensors, Blynk application, SMTP server.

I. INTRODUCTION

This project utilizes Arduino Uno and ESP32 microcontrollers, in conjunction with a GPS module and multiple sensors, to establish a comprehensive monitoring system. By integrating temperature, gas, water, and ultrasonic sensors, the system can detect various environmental parameters. The collected data is transmitted to the Blynk application for real-time monitoring and analysis. Notably, the ultrasonic sensor serves a critical role in detecting pipeline blockages, triggering immediate alerts and providing the precise location of the obstruction via email notification. This innovative solution enhances pipeline maintenance efficiency by enabling proactive identification and resolution of issues.

II. RELATED WORK

Sunidhi Vashisth, Sunil Kumar Chawla, Bharti Mahjan and Himani Chugh et al, presented an Internet of Things for Smart Environment Applications. Internet of Things (IOT) is becoming an emerging technology due to the rapid use of internet. IOT is a kind of “universal global network” that combines different things such as mobile, laptop, notepad etc.

IOT is a smartly integrated system that interacts with other machines, environments, objects and infrastructure that comprises intelligent machines including radio frequency identification (RFID) and sensor network technologies. In every company, the people send email and access websites, or other online means, but in most countries, the internet is available to transmit data across mobile devices and the Internet through easier, faster, and less costly systems. The main purpose of this object is to provide the detailed study about IOT along with its applications in different field such as health, urban city, industry, transportation and smart building. Muhammad Irsyad Haziq, Ilanur Muhaini Binti Mohd Noor and Raed Abdulla et al, presented a Smart IoT based security system for residence. The main aim is to develop an IoT based security system for resident which include biometric authentication, plate recognition, and movement detection system. In this proposed method, the programming platforms such as the Python, and the Arduino, were used to develop to demonstrate the proposed system. The performance of the developed proposed system is evaluated by testing the system with several sample tests and from there, the performance was examined. The system performed well in recognizing the different person and capable of returning the correct output in almost all the face samples as well as the plate number detection which can successfully extract the string information from the pictures. It is observed that the system has an overall accuracy of 77% after considering several important factors that may affect the system's performance. The proposed systems used off the shelf components as a proof of concept. The proposed systems were

validated based on: a) the range of the temperature found beneath a manhole cover, and b) the signal reconstruction under the presence and the absence of noise. The results show decent performance of the proposed system from the power consumption point of view, as it can exceed the lifetime of similar two pumps based Jerk chaotic oscillators by almost one year for long lifetime applications such as using LiIon battery. Furthermore, in comparison to PRNG output sequence monitoring MC e generated by a software algorithm used in AIC framework in the presence of the noise, the first proposed system output sequence improved the signal reconstruction by 6.94%, while the second system improved the signal reconstruction by 17.83 %.Towards the Implementation of IoT for Environmental Condition Monitoring in Homes Author: Kelly S.D.T, Suryadevara, N.KMukhopadhyay S.C

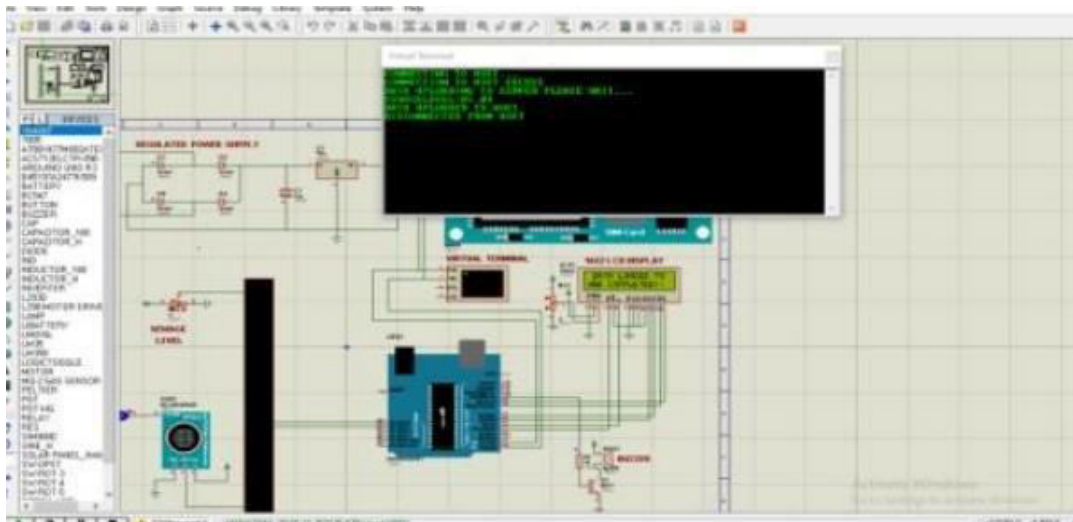
III. METHODOLOGY

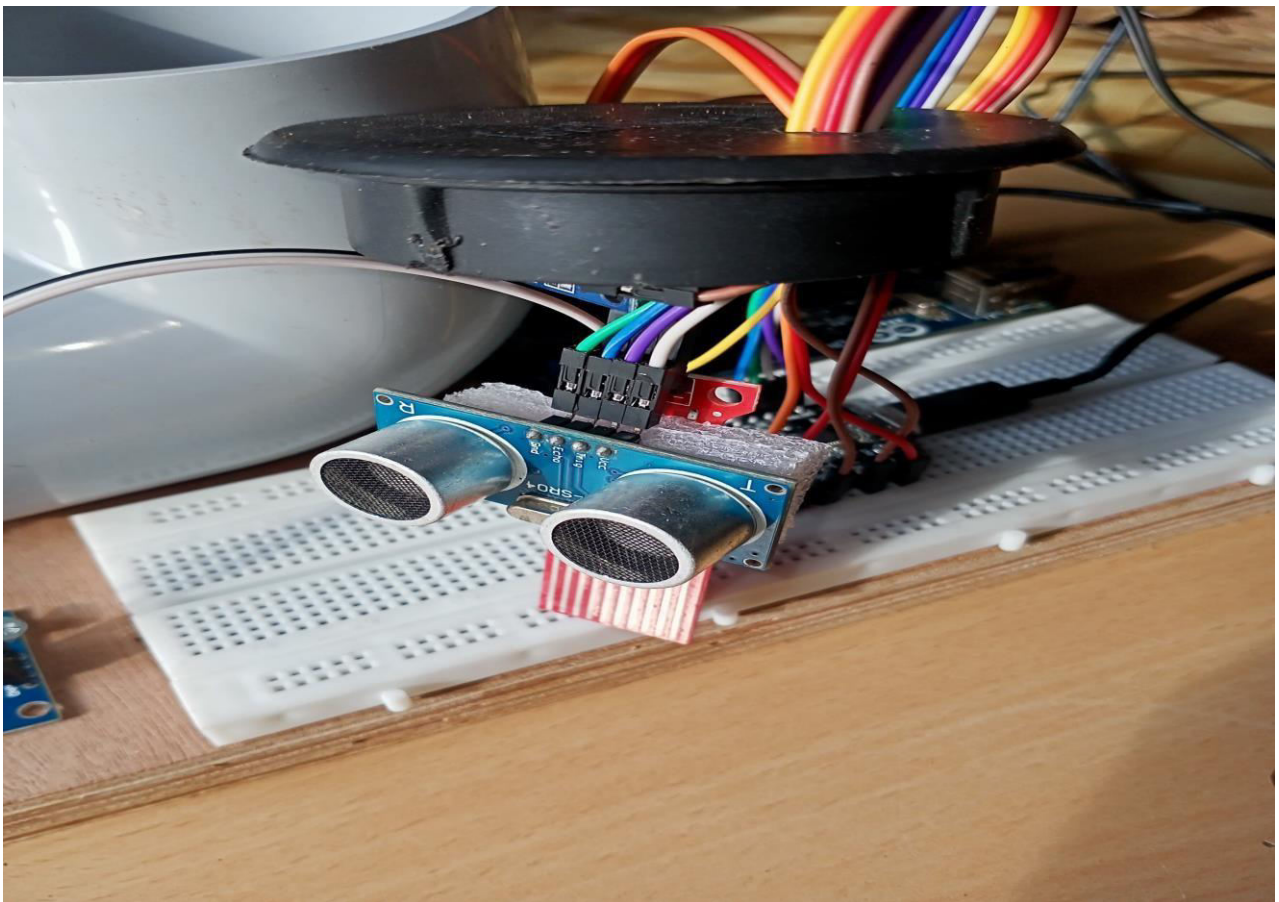
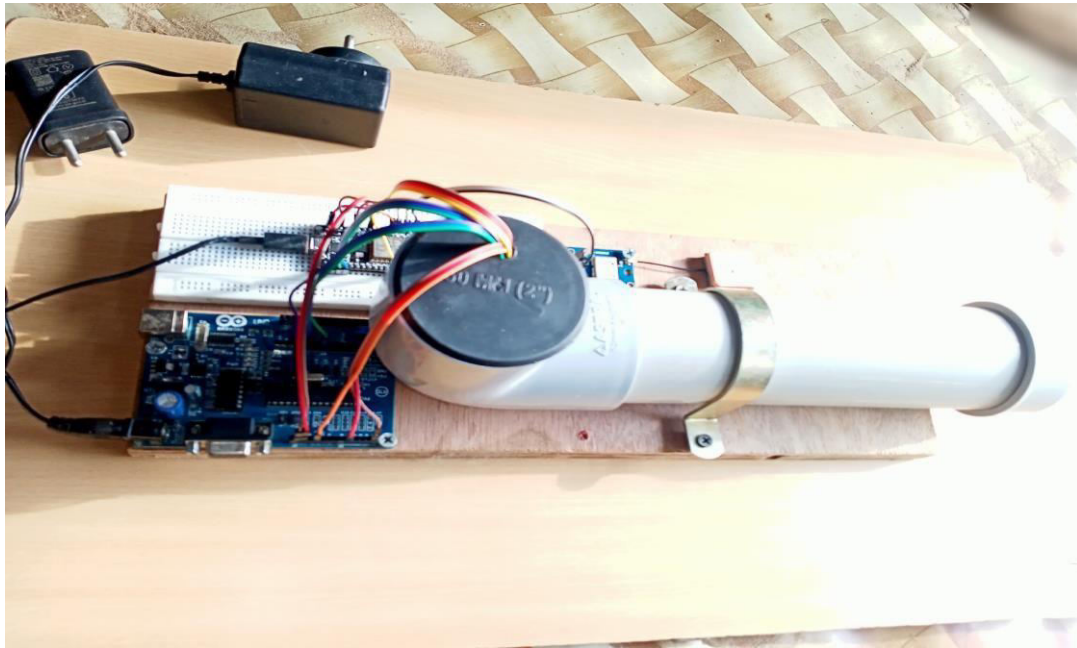
It is a very useful system to all of us because this system detects and monitors the manhole situation. the system used different components like arduino uno, dht11 sensor, mq4 gas sensor, wifi module esp8266 lcd display.in this system we used a different sensor, if any problem occurs in band holder centuries since this problem and send the information to the microcontrolled and microcontroller is given information and by wi-fi module thisis for information said to the authorized person. a new automated system is presented to solve the aforementioned shortcomings. the manhole is monitored by sensors in the proposed system, and datais automatically updated on a remote server. the microcontroller arduino mega interfaced with the severaltypes of sensors (flow, level, temperature, and gas sensors). when the varioussensors hit the threshold level, the microcontroller receives an indicator of that value and sensor is being sent to the microcontroller. furthermore, arduino mega then sends the signal and location of the manhole to the municipal corporation.

IV. EXPERIMENTAL RESULTS

In order to protect the sewage worker from death we have come up with thesolution called IOT based underground drainage monitoring system which helps inmonitoring hazardous gases present in sewage & helps to alert the sewage workerswhenever the gas level crosses the specified limit. It also displays the value of gaslevel in the smart phone through the app. It also helps to decide whether it is safe for the worker to work in the environment or not.. The proposed methodology is based on IoT, which helps in monitoring the hazardous gases present in sewage. Whenever the gas level crosses the threshold value, the sewage workers are alerted through a buzzer indicating whether it is safe for the worker to work or not through an app in the smartphone. This system helps in saving the life of sewage workers.

An ionic app is developed to display the amount of gas levels individually to the sewage workers. When the gas level crosses the thresold value, the buzzer makes a sound alerating the sewage worker. This system prevents the death of sewage workers.Below two cases are mentyioned for the clear understanding of the working of ionic application.In case 1 all the gas levels are below the threshold values so buzzer will not make sound & led does not glow.In case 2, the Carbonmonoxide gas is above the threshold value so buzzer makes a sound & led glows indicating it is not safe for the sewage worker to work over there. By following this method the death of sewage workers can be avoided.







This figure for effluent pipeline clog spotting and dissolving technology

V. CONCLUSION

The main aim in this research is to investigate and design a low-power IoT based manhole cover monitoring system to be used for smart city applications taking into consideration the IoT device design requirements and challenges. To reach this aim and based on investigation done by this research, compressive sensing was studied as it was proved from other applications its ability to reduce the power consumption for IoT device by reducing the sampling rate of the used ADC. As a first step in this research, MC types and issues have been investigated deeply. Based on this investigation, a new detailed classification of manhole cover issues with the current monitoring systems is proposed. This classification presents good guidance for the modern governments to identify the main requirements to improve the safety and the security for their societies. Also, this classification gives a new vision for the researchers who work in the smart city's underground and road monitoring applications. It was concluded from this classification and investigation that analogue to digital converter found in DAQ module is the main source for consuming power for the MC automated monitoring system. In this research, a low power automated MC monitoring system with IoT device design requirements was the target to be suitable for Smart City's application.

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