

Life-Saving System from Harmful Gases in Sewage Tank

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Abstract— Most urban zones have developed an underground sewage framework and it's the obligation of the common body to see to the tidiness of the tanks considering the way that as the hour of these tanks being unclean forms makes it a critical issue. Because of the absence of utilizing appropriate gas spillage recognition framework, a number of dangerous accidents occurred during the last few decades. The proposed paper focuses on designing a life-saving framework that will end up being financially affordable and furthermore shielding the sewer workers from the threats of sewage gases. The smart glove in the proposed approach incorporates the gas sensor and wellbeing checking heart sensor where the values obtained are processed. Various types of sensors are utilized to monitor parameters in sewage like gas, obstacle, etc. When a threshold value is lesser than the sensed values this system alerts the sewage worker in the tank through the Blynk app, this helps the wellbeing of society.

Keywords—Smart glove, Internet of things, Blynk app, Sewage gases, life-saving.

I. INTRODUCTION

In recent years human scavenging is an important issue and these are developed due to many reasons out of which we are focusing on sewage systems. The Indian sewage system is not a pretty scene and what is making it worse is that almost 80000 unskilled workers are sent to sewage tanks without proper gear and equipment[10]. So, this is taking an immense toll on human workers who are sewer laborers.

The lack of prior caring for sewage work is the witness for the deaths of thousands of sewer workers from accidental deaths and diseases like hepatitis, skin disease and typhoid due to gases. Many ways are being searched to curb this problem but the result has led to difficult solutions which include high cost, low availability, etc. The main objective of

this project is to develop a system affordable glove which comes in handy for the sewer laborers. The technology on which the system is based is IoT.

IoT is becoming the basis of many smart systems, it's a network where all the data is sent from humans and their surroundings which has sensors for collecting the data to network without human-computer interactions[9]. The major challenges of IoT are network issues, difficult to identify if the device is affected. In the project, we propose a life-saving system from harmful gases in the sewage tank which will provide an integrated system wherein continuous monitoring for the sewage worker's health and harmful gases present in the vicinity of the tank. Here a person is wearing the equipment consisting of the gases sensors for harmful detection, ultrasonic for object detection and heart sensors which will continuously monitor the person's heart rate and all the notifications regarding the worker's health and the gases is displayed in the app and alerted to the sewer laborer through buzzer.

II. RELATED WORK

Most gas poisoning incidents occur in the sewage tank thereby claiming lives. The prominent gases present are methane gas, carbon monoxide and hydrogen sulfide[7]. Many contractors and corporations ignore the safety procedures so as get the job done more quickly. So, a study was done to see how lives are affected by it. If the sewer workers were exposed to smell it was found that close to 50% of the workers develop symptoms like Sub-acute symptoms including sore throat, cough, chest tightness, breathlessness[4].

The most common way is by hand-to-mouth contact during eating, drinking, and smoking, or by wiping the face



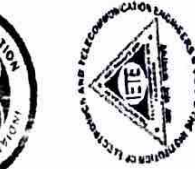


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