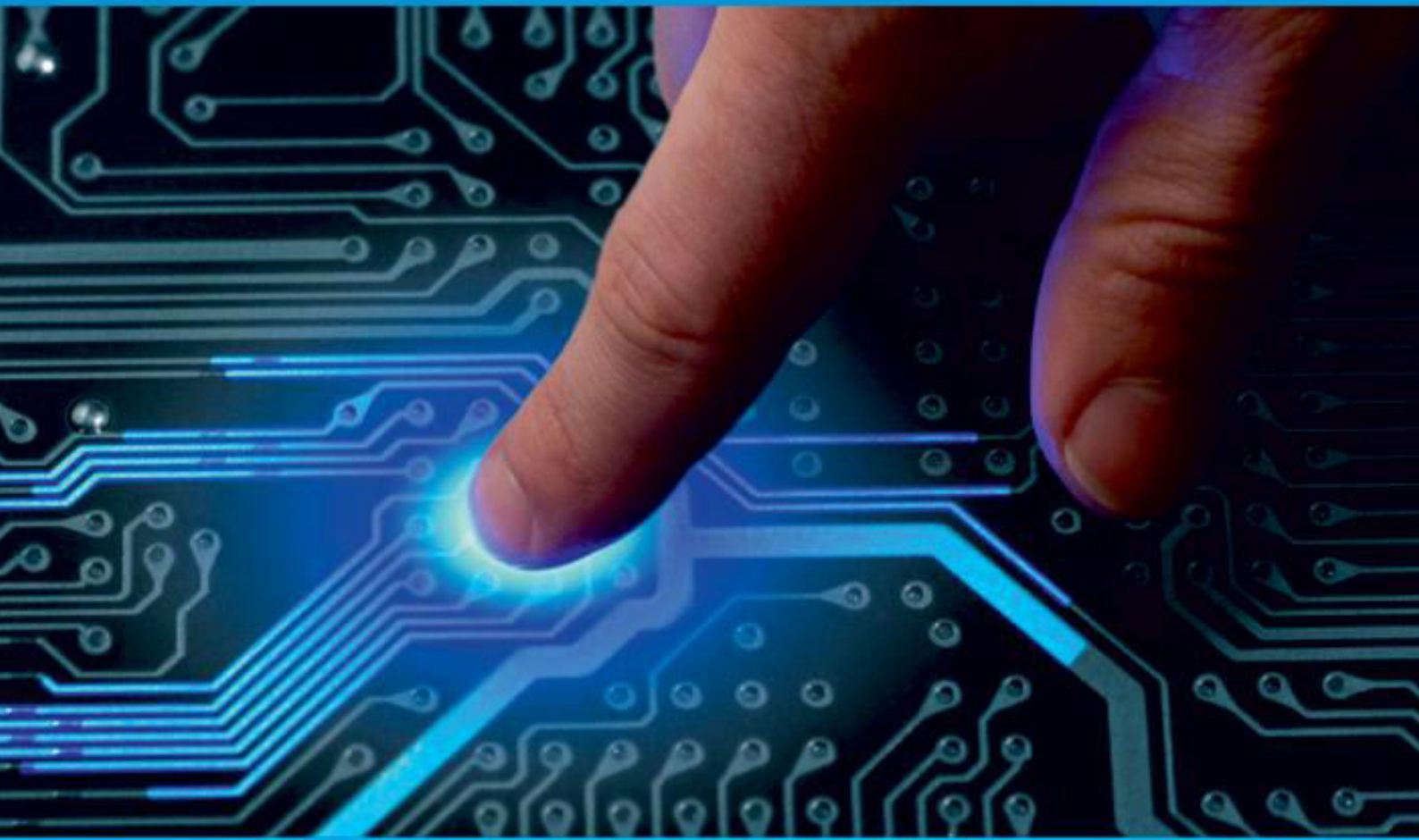




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A Survey on Google Map with Pollution and Rain Tracking

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ABSTRACT - Most of the traditional fire evacuation systems present today are designed on the assumption that the people present in the building have prior knowledge about the nearest safety exits, but this assumption is not true in many cases and has also resulted in the loss of life in several instances. The Fire Evacuation and Detection System is an embedded system which will effectively guide the fire brigade to victim. A network of oxygen and smoke detector sensors placed strategically collects and delivers accurate information about the surroundings to the system. The yolo algorithm is used to calculate the person or human count in the room where fire is there. Based on the count of the person in the room, evacuation app will send notification to fire brigade the team which will contain the count of person in room which will help to evacuate them.

KEYWORDS: INTERNET OF THING (IOT), Yolo, evacuation, sensors

I. INTRODUCTION

Development is occurring in each of the field today. As every sector is utilizing newly developed technologies the need to keep them safe and secure is more important. If there is no security measures available accidents will arise and ends in a big tragedy. Fire accidents is among one of them, as systems are there to control the spread of fire in each sector but it doesn't give a dynamic evacuation path. Countries like Australia, Canada, New Zealand, USA have provided a specialist group for unified, better conceptualized approach to fire safety engineering[1]. In some places mining is an occupation for most of the people, but deeper the mining occurs the chance of workers in protecting from fire disasters become less. So there developed a system that uses sensors, IoT, smartphones, detectors addition with two-way communication and 3D visualization for fire safety[2]. Another problem for increasing fire accidents are lack of knowledge on fire safety. In America 75percent have a home evacuation plan. For this they developed a mobile evacuation having a fire safety plan informing them of the dangers of house fires[3]. In most of the cases there lack a good dynamic path.

We developed an App which will send count of the person to fire brigade team once the smoke sensor have detected the fire.

II. LITERATURE SURVEY

Khyrina Airin Fariza Abu Samah, Burairah Hussin and Abd Samad Hasan Basari [1] developed an algorithm for finding the shortest and safest path during emergency evacuation by modifying the existing Dijkstra algorithm for an intelligent autonomous evacuation system. The methodology states the following changes: (1) modification of nodes direction: the nodes direction is restricted to one-way only so that people don't go near the fire affected and to direct them towards the exit nodes only and (2) modification of Dijkstra's algorithm: the blocking of the related nodes affected by the fire thus, rendering those unusable for exit route. This systems results presented that Dijkstras algorithm can be used as an effective navigation solution in emergency situations. Nor Amalina Mohd Sabri, Abd Samad Hasan Basari, Burairah Husin and Khyrina Airin Fariza Abu Samah [2] details about a simulation method using Dijkstra's algorithm for evacuation in high rise buildings. The program was developed on MATLAB and the programs methodology consisted of inputting matrix data, source and destination nodes, removal of affected nodes and the path will be blocked, finally generating a safe exit route. The simulation program attempts to validate the Dijkstra algorithm for generating the safest and shortest path for various different matrix input. Md Saifudaullah Bin Bahrudin and Rosni Abu Kassim [3] developed a fire alarm system with the help of a small single board computer Raspberry Pi and a microcontroller board, the Arduino Uno as a master-slave configuration. The system proposes to alert the user whenever a fire breaks out and ask permission from the user whether to report to the firefighters. The system uses an image captured from the home surveillance camera and sends the image to the user to check the validity of the alert. It was developed on Python and the captured image was displayed on a PHP page. This system demonstrated the use of a cheap and effective solution for detection and alerting users with the help of Raspberry Pi and Arduino Uno. 4. Zixuan Bai "Real time prediction for Fine-grained air quality monitoring system with

asynchronous sensing”, Perking university 2019: The authors have stated that because of the disturbing degrees of contamination in a portion of the significant urban communities of world, persistent observing of air quality has become a significant issue. By utilizing remote detecting system alongside rapid web association, the checking and examination process has become effective. Such mechanized frameworks are precise, history of the boundaries is moreover put away which can be utilized. The WSN checking frameworks can likewise be executed for different sorts of contamination, water contamination, soil contamination or radioactive pollution.

5. Mykhailo Lobur and Dmytro Korpyljov and Nazariy Jaworski "Arduino Based Ambient Air Pollution Sensing System" University of Exeter, 2020: The paper presents a remote sensor organize for air contamination observing in light of IOT is useful for the business as well as everyday citizens too. As the contamination information will be accessible with individual and one can see where the contamination level is more around then and the individuals having respiratory sicknesses may abstain from following that way for that specific time of time. Advanced cells are extremely regular now daily. Indeed, even the contamination because of ventures can be checked and the information can be made accessible on the web so that, the important activity to diminish the contamination might be started furthermore.

6. Md. Mohiuddin Ahmed, Suraiya Banu and Bijan Paul" Real-time Air Quality Monitoring System for Bangladesh’s perspective based on Internet of things "International Conference on Electrical Information and Communication Technology (EICT), 7-9 December 2017: In this paper the author has stated that the alarming levels of pollution in some of the major cities of world, continuous monitoring of air quality has become a major issue. By using wireless sensing network along with high speed internet connection, the monitoring and analysis process has become effective, efficient and is easily accessible by common people. Such automated systems are accurate, reliable. The WSN monitoring systems can be implemented for water pollution, soil pollution or radioactive contamination. Using high efficiency communication protocol along with sensor network to achieve accurate data in real time.

7. Octavian A. Postolache, J. M. Dias Pereira, and P. M. B. Silva Girão" Smart Sensors Network for Air Quality Monitoring Applications" September 2009: In this paper, the development of an IoT-based indoor air quality monitoring platform is presented. Experiments were performed to verify the air quality measurement device used in the platform based a method suggested by the Ministry of Environment, Korea. We verified the accuracy of indoor air quality monitoring and the desirable performance of the device. Also, experiments making use of the platform were conducted and demonstrated suitable performance and convenience of the air quality monitoring platform. In this paper, the author focused on testing the reliability of the device and implementing the platform.

8. Somansh Kumar and Ashish Jasuja "Air Quality Monitoring System Based on IoT using Raspberry Pi" International Conference on Computing, Communication and Automation (ICCCA2017): The author states that the proposed framework gives minimal effort, low force, conservative and exceptionally exact framework for checking the condition with the committed sensors remotely from any place in this world. An ideal trade off among exactness and cost is accomplished by utilizing single board minicomputer Raspberry pi and proper sensors prompting a well-grounded framework. Air quality observing framework can be more worthwhile if poisons like Sulfur dioxide, nitrogen dioxide, ground level ozone and so forth are additionally checked.

9. Ajay Chaturvedi and Laxmi Shrivastava "IOT Based Wireless Sensor Network for Air Pollution Monitoring "Jan 2020: This paper the author has stated the execution of an estimating framework for air quality checking. Two structures are ace postured for remote correspondence between the detecting hubs what’s more, a PC that deals with the entire framework. The frameworks are especially appropriate for indoor applications. The yield of the pre-owned gas sensors depends not just on the cross impact of the essential estimated gas yet in addition on external impact factors, to be specific temperature and mugginess. The impact of this cross effect on the exactness of the estimation can be limited utilizing moreover neural systems.

10. JunHo Jo, ByungWan Jo, JungHoon Kim, SungJun Kim and WoonYong Han "Development of an IoT Based Indoor Air Quality Monitoring Platform" January 2020: The author states, with the correct usage of the proposed framework they can decrease risky mishaps that happens all through the nation. This arrangement can be introduced in house for house well-being just as any industry or crowd work environment to keep up the air quality safe and lift their work speed. One of the primary explanation of this is outrageous pneumatic force. So, in future they need to expand this framework to recognize pneumatic force of evaporator so it can forestall mishaps and spare numerous lives just as modern misfortune

III. PROBLEM DEFINATION

The consideration about the exact location where humans are stuck in emergency evacuation of large smart buildings is taken into account. The building evacuation time is crucial in saving lives in emergency situations caused by imminent natural or man-made threats and disasters. We propose to made hybrid model for image recognisation to identify victim stuck in building and hardware model to detect the fire.

IV. PROPOSED SYSTEM

We propose an image recognition system which will help to identify humans which are stuck in fire. Once fire is detected with the help of sensors it will send notification to rescue team and alarm will be ring. If someone is stuck camera will take pic and will pass data to server. Server will process the image and will send notification to rescue team about the location of humans. This will help rescue team to quickly identify the location which will led to less death and quick rescue. This project is to develop an application from which air quality monitoring can be done to take preventative measures to make our living environment safe. The application is user-friendly and works as a preventative mechanism to generate real-time alerts on air quality. Our main contribution is to develop air quality monitoring system that senses the real-time data of surrounding parameter like carbon monoxide, and PM level and alerts the people when the quantity of these elements goes beyond a certain limit and shows the data in an easily understandable format. This application's main motive is to notify the user under any serious or casual situations. In case of accidents related to air, this system alerts the user in taking right decisions at the right time. This application will also consider the security factor and assure the user that his/her personal data and location status would not be disclosed to any third party beyond the scope of the application. This project is achievable when it comes to Time-Budget factor. Prioritization in every step in the project along with backup plan in some areas is also achievable. Along with this identifying Technical risks, Operational risks, Schedule risks, Business risks is achievable.

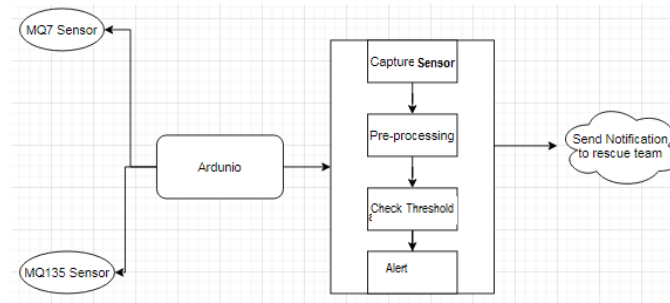


Fig 1. Architecture Diagram

V. HARDWARE DESCRIPTION

MQ7 Sensor:

The MQ-7 smoke sensor is sensitive to smoke and to the following flammable gases:

1. LPG
2. Butane
3. Propane
4. Methane
5. Alcohol
6. Hydrogen

The resistance of the sensor is different depending on the type of the gas.

The smoke sensor has a built-in potentiometer that allows you to adjust the sensor sensitivity according to how accurate you want to detect gas

VI. WORKING OF HARDWARE:

The voltage that the sensor outputs changes accordingly to the smoke/gas level that exists in the atmosphere. The sensor outputs a voltage that is proportional to the concentration of smoke/gas.

In other words, the relationship between voltage and gas concentration is the following:

- The greater the gas concentration, the greater the output voltage
- The lower the gas concentration, the lower the output voltage



VII. LIMITATION

1. Android App is must to be installed
2. Hardware cost and maintenance is required
3. KNN Algorithm accuracy is 90%

VIII. CONCLUSIONS

The system deals with the finding of dynamic human count using yolo algorithm. It focus on the finding a humans with less difficulty. According to the project, whenever fire breaks out sensors will suddenly detect the spread of gases. Thereby giving alerts giving to the fire brigade team along the interphase to exit victim from the building safely.

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