Live Human Detection and Streaming using IoT

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Abstract- Natural calamity affects many areas of the world which leave behind a great loss of life. Disasters like floods, earthquake etc produce a devastating effect often lives get buried or trapped in debris. In situations like this detection by rescue team becomes time consuming and also the wide area that gets affected adds more difficulties.
The main objective of this project is to develop a system, which can rescue people who are stuck in debris from dying due to natural calamities .This system can quickly provide amount of information available to the rescuers and more lives can be saved.

Keywords – Detecting Humans,IoT,Sensors,Wi-Fi,LoRa.

I. INTRODUCTION

Every year natural as well as man-made disasters like collapse of bridges,buildings happens at many part of the world which takes human lives.Natural calamities are unstoppable and sudden but only timely rescue can save more lives. The Urban search and Rescue (USAR) says, the probability of saving a victim is high only within the first 48 hours of rescue operation, and then the probability becomes Zero. In the time of Rescue operation some people like fire fighters, policemen, and medical assistance are exposed to very dangerous situations caused by the disastrous environment they work in so, there is a chance for the rescuer to become a victim who needs to be rescues.

The system is designed for detecting humans in an unmanned area using sensor units transmit the data to the receiver using IoT. The data about the victims and the surrounding environment conditions are collected and shared via wireless link to get observed by the rescue team which will direct the search by taking required precautions and the tools to carried out rescue operation.

II. PROPOSED ALGORITHM

On a moving vehicle ATmega328 running on 5v power supply has different sensors like gas sensors, PIR sensors, fire sensors, motion sensors and accelerometer. It checks the input from these sensors while moving in disaster prone area as a small moving vehicle. For this purpose, two DC motors are use which is connected to the micro-controller through motor driving IC as it needs 12v power supply. These inputs information like whether there is live human buried, whether there is any gas leakage, whether the area is having earthquake. All this is collected by microcontroller and send to local machine through LoRa transmitter.
On another side we have LoRa receiver interfaced again to ATmega328 .In disaster prone area there is possibility that there is no network but this module will work using Rf transmission in about 2Km range from where vehicle is moving.It will also have ESP8266 Wi-Fi module which will operate in further area from where network is available for transmitting the gathered information to the cloud.

User can observe the data through local machine by connecting to the server. Also commands can be issue from the web page to direct the vehicle.For live streaming a mobile camera will be mounted on vehicle and can be observed on local machine. This will be connected on Wi-Fi as well.

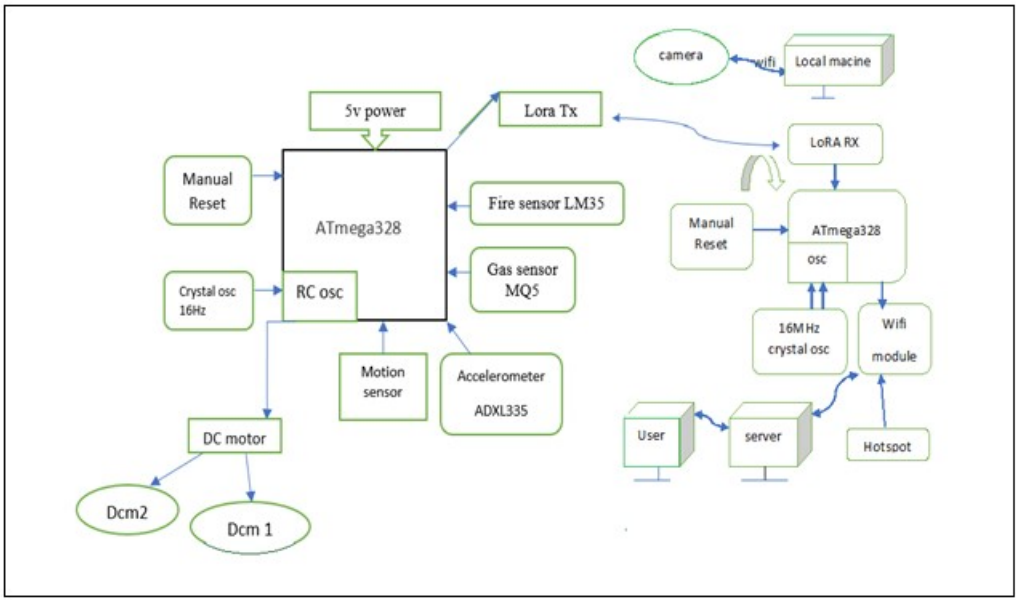

Figure 1. Block diagram of the system

III.SOFWARE SIMULATION

The simulation of the circuit is performed with the help of Proteus software simulation tool (version 7.7).ATmega32 controller is used along with the the power supply of 5v and manual Reset.Pin no.38(PA2/ADC2) is connected to the temperature sensor LM35.Similarly gas sensor MQ5 and PIR sensor are connected to pin no.39(PA1/ADC1) and pin.no40(PA0/ADC0) respectively.

LoRa module replaces with the Virtual terminal of which Tx and Rx pins are connected to the Tx Rx pins of controller pin no.14 &15.

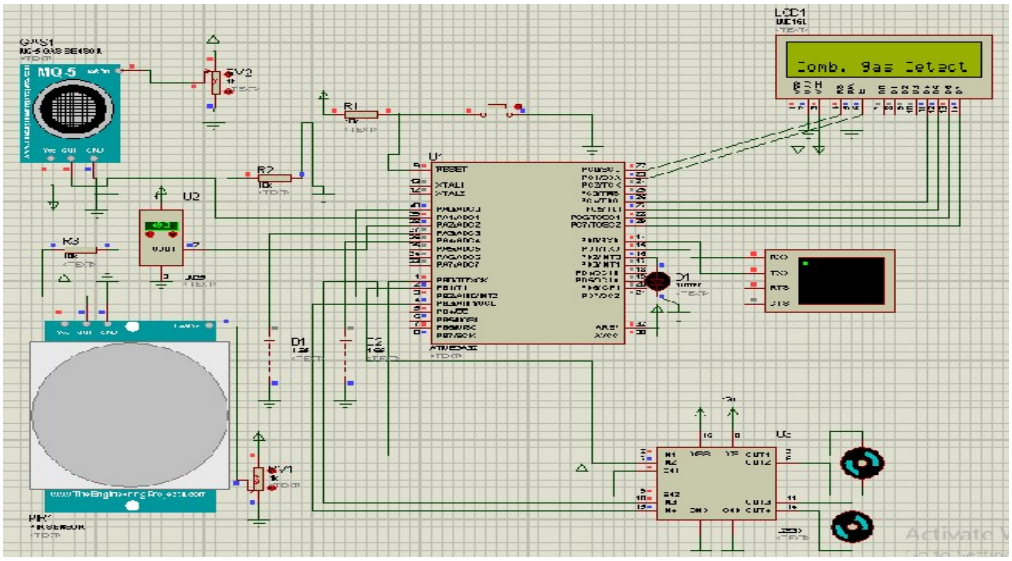

Figure 2. Circuit simulation of the system

IV.PROCESS OF IMPLEMENTING IOT

For implementation of IoT,we are creating a domain name via 'Godaddy' on which the whole process will take place. To create our own domain name it is necessary to choose the name which satisfy all the conditions which will make it valid domain name. After owning a domain, the official Godaddy site will provide the URL, username and password to login into c-panel.By using the address provided and the login credentials we do the hosting in c-panel.Control page is for controlling the vehicle after detecting the sensed parameters. There will be various buttons like left, right ,forward and backward, which will control the movement of the vehicle. Status page is also created for displaying the sensed parameters.

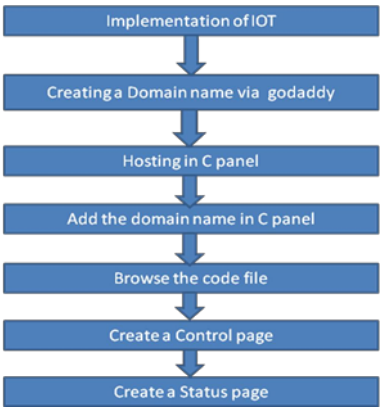

Figure 3. flow chart of IoT implementation

V.RESULTS

At initial conditions all the sensors values are set to the minimum where they can not give the output.This is done by minimizing the respective value of the resistor. When simulation starts,due to no output from sensors the virtual terminal shows 'No' as detection output.

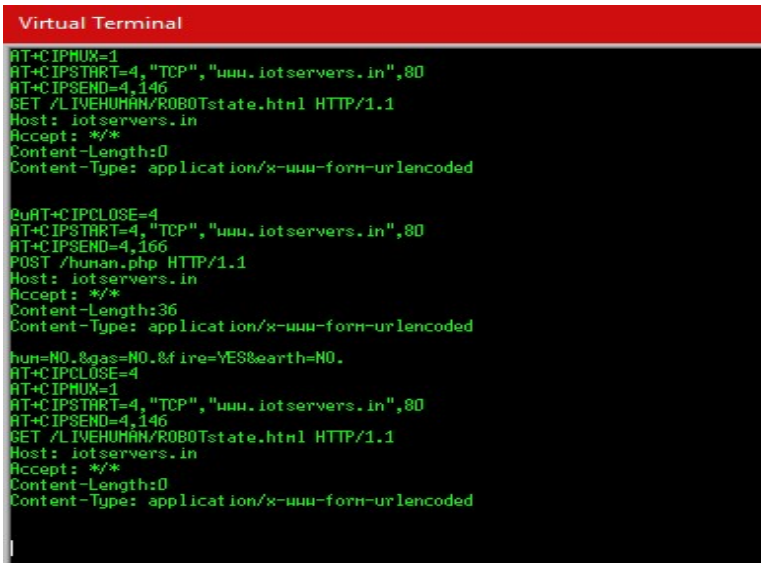

Figure 4. Output on virtual terminal

To change the sensors outputs to the positive response the value of the resistor is increased.so when running the simulation again we get 'YES' as a response.'@u' command is used for this operation .For rotating the motors

connected to pin no.1,2,3&4 through the driver IC L294D in a forward direction command '@1' is given on virtual terminal and so as to stop motors '@5' command is issued.

In practicle environment a web page will be responsible for giving these commands and obtaining the status of the target area.

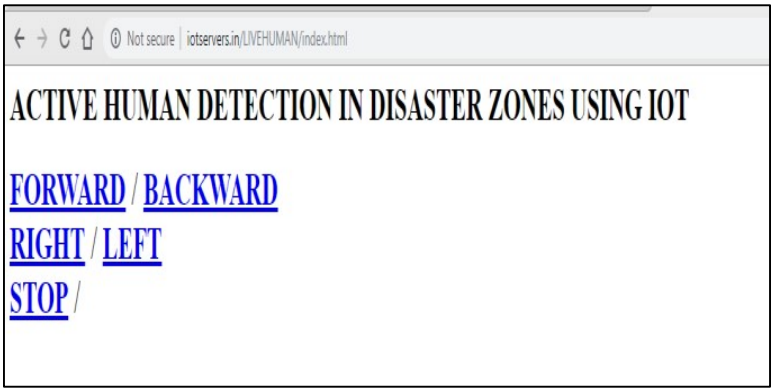

Figure 5. Web page from where commands are issued

VI.CONCLUSION

This proposed system will provide the moving robotic vehicle which make search according to the commands from control section. Search operation is done by sensors and processing the signals and giving the output on the monitor by communicating through LoRa Wi-Fi network and broadcasting the video data. Hence many lives can be saved by early detection of live human during an earthquake disaster or any natural calamities in a short duration which becomes time consuming and unaffected if done manually.

REFERENCES

[1] Tinto Varghese P, Rithu Thomson, Sanjay Menon, "Human Detecting Robot for Rescue Operations", 2017 IJRTI | Volume 2, Issue 3 | ISSN: 2456-3315.

[2] Geetha Bharathi.V. S, Dr.S.Sudha, "Alive Human Detection in Disaster Zones using Manually Controlled Robots" International Journal of Innovative Research in Computer and Communication Engineering, Vol. 3, Special Issue 2, March 2015.

[3] Mr. S.P Vijayaragavan and Hardeep Pal Sharma, "Live Human Detecting Robot for Earthquake Rescue Operation", International Journal of Business Intelligent Integrated Intelligent, Vol 02, Issue 01, June 2013

[4] UthraB, AdchiyaD, Anupriya.K. "Live Human Detection System for Earthquake Rescue Operation", Journal of Computation in Biosciences and Engineering, Vol.7, Issue4,.June2013

[5] Shruti N, Supriya P, Prajkta P, V.S.Bendre," GPS Based Soldier Tracking And Health Indication System", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering Vol. 2, Issue 3, March 2013