

Microcontroller Based Industrial Emergency Band

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ABSTRACT

In the case of man-made disaster, sometimes the detection is late that the disaster has already spread widely. The importance of this microcontroller based industrial emergency band is to make humans alert and react to emergency situations as soon as possible. In recent and earlier situations there have been many case where it has been noticed that the conventional security system has been proven to be failure. This system works on Radio Frequency the advantage of Radio Frequency is it has different penetration through the walls of the buildings based on the frequency and its range is up to 3 meters to 100 meters.

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I. INTRODUCTION

The aim of the project is to prevent accident that could be happen in the industry's by any type of mechanical or electrical fault. In this project we are going to use a band that workers can be use to control the various types of things in industries. The band is called as "INDUSTRIAL EMERGENCY BAND". The project is used to prevent accidents that can be man-made or natural type of accidents. In this project has two main parts that is transmitter and receiver. The transmitter will be in the form of band that you can wear on hand like wristwatch or wear like id card etc. The transmitter will consist of switches on it which will have push button on it that will help to switch ON the band when needed to operate whenever there will be emergency there will be various transmitter because the industries now days are big and have many sectors in it. That band will be only given to some workers in

companies. The band will work as transmitter in this project which will transmit signals to the receiver, the transmitter and receiver used here will be RF radio frequency transmitter and receiver. Receiver will consist of different components and will consist of arduino microcontroller, LCD, relay, voltage regulator, power supply, speaker etc components. The receiver will receive the signal and perform the operation as per given signal. The operation will be performed in that sector and alternatively will give alert to different sectors with the help of speakers. Here we have used HT12E and HT12D That are pair of encoder and decoder IC, the encoder is used in transmitter and decoder is used in receiver.

This project will help to minimize the accidents that can happen in industries. In the upcoming chapters, we are going to explain different

important parts of this project like chapter 2 deals with literature survey and based on that we have written summary of literature survey. Chapter 3 deals with problem statement, objectives of project and methodology. Chapter 4 deals hardware design, which includes block diagram, circuit design, components details. Chapter 5 deals with software design which includes flow chart, code and software requirement. In chapter 6 testing and result part is provided and chapter 7 deals with conclusion and future scope of our project and the last chapter 8 deals with references

II. LITERATURE SURVEY

Vladimir Krizhanovskii, Jeongseon Lee, Seok-Kyun Han

A low power and low cost RF receiver/transmitter. The RF receiver and transmitter with 2-mm and 1.62-mm die size consume 3.5mA in receiver mode and 3mA in transmitter under supply voltage of 1.8V. The receiver 30-DB conversion gain variation, 7.3db noise figure.

Jounghyun Yim, Jinho Yang, Jinguok Kim, Jeonghyum Cha

The RF transmitter employing the constant envelope modulator has been designed and implemented among the various modulators the delta summation modulator has been chosen for its noise shaping characters.

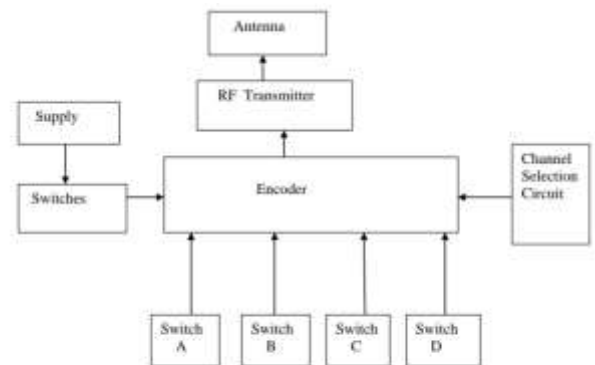
Moo Sung Chae, Zhi Yang, Mehmet R. Yuce, Linh Hoang

The wireless transmission of data rate was achieved through low power implantable UWB wireless transmission. Total power consumption is only 6mW even when transmitting raw data from all 128 channels.

Nojan Aliahmad, Mangilal Agarwal, Sudhir Shrestha and Kody Varahrnyan Paper based lithium batteries which we have used in our project for power supply. This paper says that lithium power batteries have been developed.

III. METHODOLOGY

Transmitter



Receiver

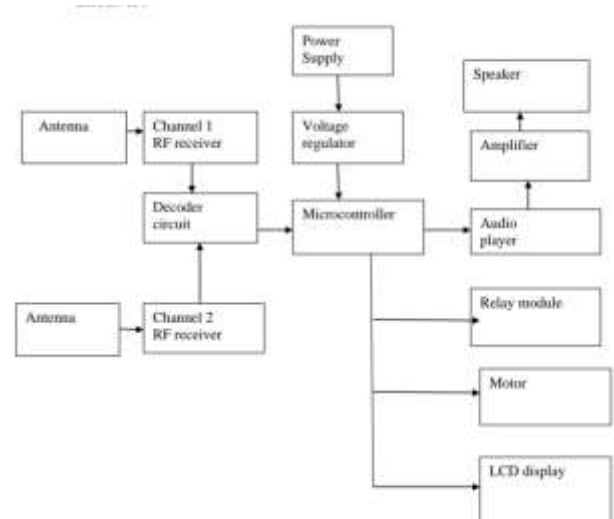


Fig. Block diagram

The working of System:

1. The signals given from switches are encoded (convert into a suitable form) using encoder.
2. RF transmitter and receiver is used to transmit and receive signal via radio waves respectively
3. Microcontroller processes received signal.
4. Decoder converts the code into set of signals.
5. We can select the sector by channel selection block.

IV. CONCLUSION

Thus we have seen how this project is going to work. We have developed this project as a cure if

any type of emergency will be occur it will be able to cure it in short time and this project is also easy to use and pocket friendly that anyone can afford it and this project needs less maintenance and the battery life is also high, in this project we have also used a speaker in it that will indicate the workers and then what the problem is and also we have used LCD that will be able to display the problem with in which sector the problem has occurred . This project can be also used in the companies which face problem of sensor failure or where the sensors won't work. We can also make many types of changes in this project that will help us to improve more things in future.

As for future scope you can make it IOT based means when the emergency's like medical emergency will occur it will automatically send SMS to nearby hospital that there is a need for the ambulance or emergency same as if there is fire emergency it will send SMS TO fire department and will tell them about the problem and will be able to solve problem faster & more efficiently .In future we can also add it in google maps like now traffic is indicate in google maps it will indicate people to stay away from that place if gas leakage or fire problems are occur that will be harmful for peoples.

For future scope you can also be able to add servo motor in it if there is some gas leakage and we can also use some leds(by indicating) to alert the workers . Thus with this project we can prevent the problems that can be occurred.

V. REFERENCES

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