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Design and implementation of panic alarm during disaster in extreme situations using Proteus Software

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ABSTRACT

This paper presents the design and implementation of panic alarm used in this project during disaster in extreme situations. It is used for observing of sudden problems which can come from different types of naturally as well as man-made disaster. The aimof this project is to observe the different emergencies and to locate the place through panic alarm device. The stimulation has also been done by using proteus software.

Keywords— *Buzzer, IC-555, Proteus Design Suite 8.10*

1. OBJECTIVE

The objective is to judge the use of personal panic alarms and focusing to reduce therate of accidents that can happen against any type of natural as well as man-made disaster. If there were enough numbers of well-designed controlled analysis recognized and so we intend to include estimates the effects on the defined outcomesof involvement using personal panic alarms

2. INTRODUCTION

As we know that the purpose of panic alarm is to allow a person during disaster toquickly call for help in the case of an emergency. We know that during such emergencies, it is not possible to contact the other peoplearound us, so by doing this project, we can see that how a panic alarm can help us toget out of the worse situation without any delay. The problems can come from both types of disaster- Natural disaster and man-madedisaster.

Pictorial Representation:

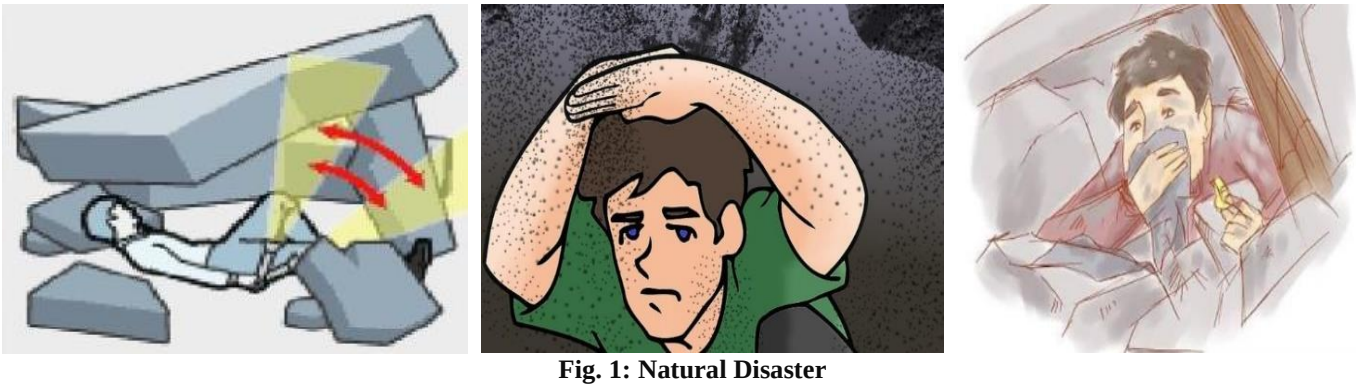


Fig. 1: Natural Disaster

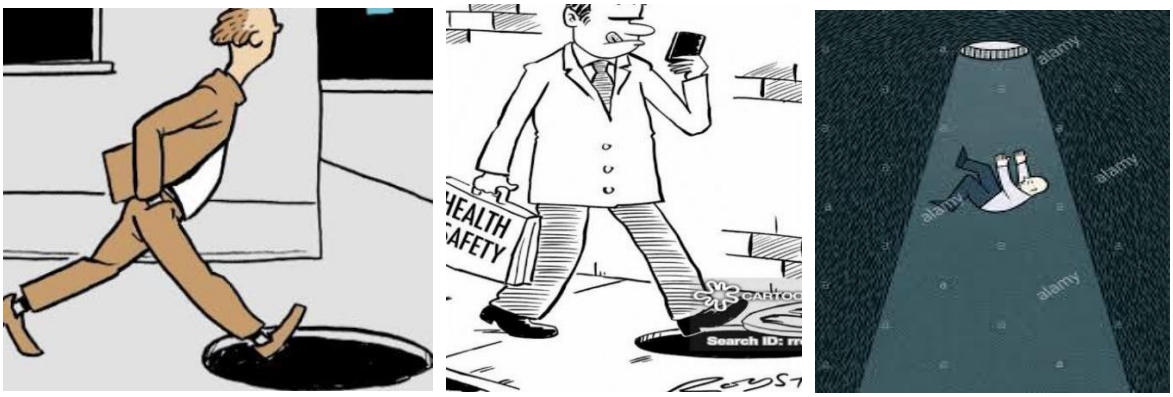


Fig. 2: Man-Made Disaster

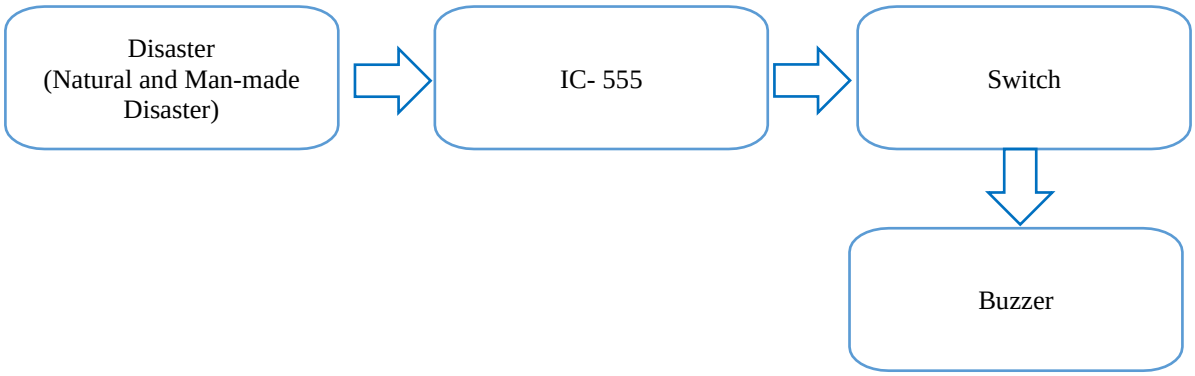


Fig. 3: Block Diagram

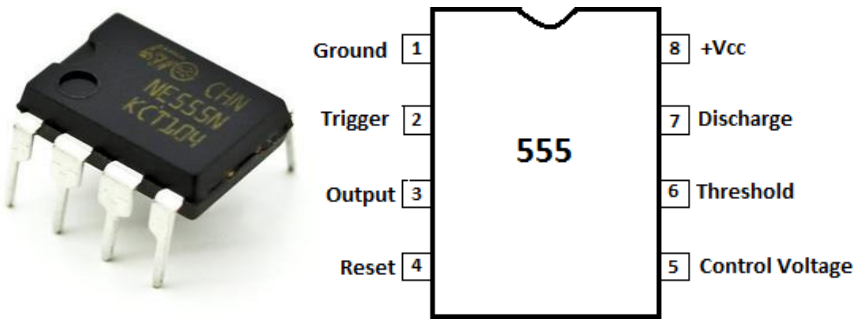
3. MECHANISM

3.1 Buzzer

A buzzer is a small but important component to add sound (like beeping) to this project.It is a very small and compact 2-pin structure, used on breadboard, PCBs etc. which makes this a widely used component in most electronic devices. It is used in timers, alarm devices, etc. It consists of an outside case with two pins to attach it to power and ground. The buzzer is normally used for switching circuit to turn ON or turnOFF the buzzer at required time and interval. It can also be used by giving power to it using a DC power supply which has a range from 4V to 9V.

3.2 IC-555

The IC 555 timer is a type of chip which is used in different applications like an oscillator, pulse generation, timer. We can design IC 555 timers by using various electronic components like transistors, diodes, resistors, and a flip flop. There are lotof applications of IC-555 which are mostly used as vibrators like, AstableMultivibrator, Monostable Multivibrator, and Bistable Multivibrator. The main function of this IC is to generate an accurate timing pulse. It can also be used by givingpower to it using a DC power supply which has a range from 4.5V -15V

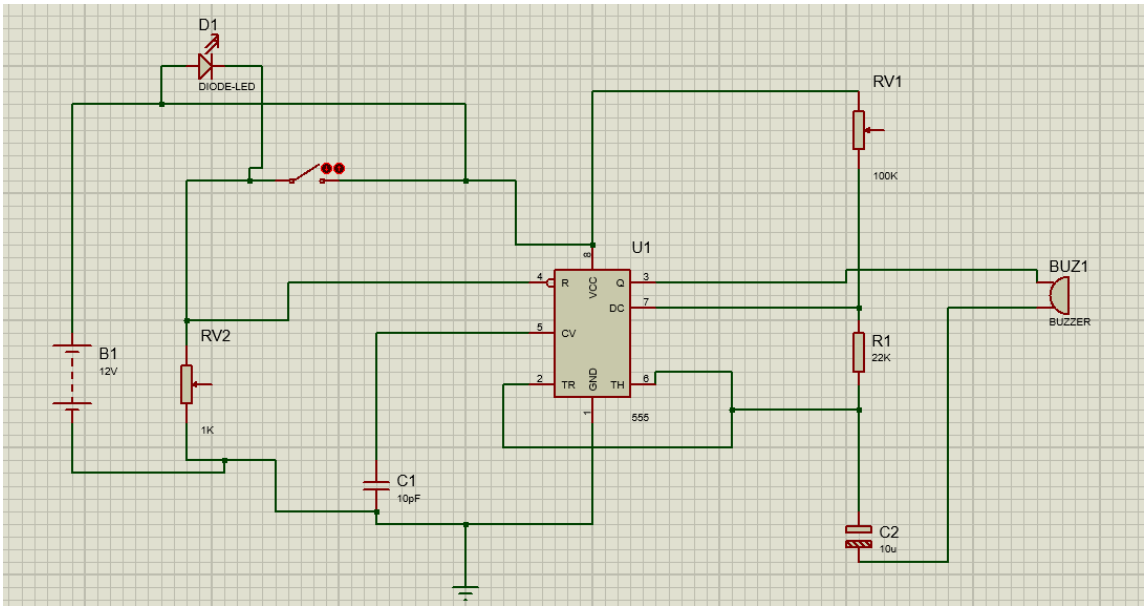


4. USE OF PERSONAL SECURITY ALARM

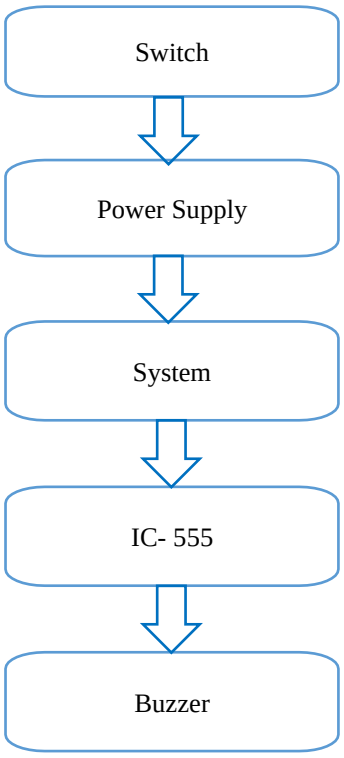
Panic button systems are part of an internal alert system, which often consist of hardwired buttons placed in locations where there is a high risk of violence. Their activation triggers an alarm on a tracking console. These may be useful if there is a sudden situation of panic. It could be because of a natural or man-made disaster. Theyare set in such a way that on when and by whom they should be activated and includea predetermined response plan.

5. PROPOSED MODEL USING PROTEUS

The Proteus Design Suite is a software tool suite which is used primarily for electronic design automation. It is mainly used by electronic design engineers and technicians who create electronic prints and schematics for manufacturing printed circuit boards. In this project we have used proteus software for the result,



6. FLOWCHART



7. ALGORITHM

Step: 1- Start
Step: 2- when the switch is pressed, then the power supply coming from the battery activates the system.
Step: 3- From the system, the IC-555 also activates and it enables the buzzer and thus sound of beeping is produced.
Step: 4- If the button is not pressed then the circuit is in disabled mode and hence the alarm will not work but the power supply will be provided all the time to the IC-555 and thus the circuit will run in Astable mode.
Step: 5- After examining the ON and OFF period, we have found that the circuit will remain on for about 0.845 seconds and will be off for about 0.152 seconds.
Step: 6- End

8. WORKING PRINCIPLE

Now we are using IC 555 timer, resistance, capacitor, buzzer and battery to produce thefinal output in this device. This device is used to allow a person during disaster to quickly call for help in the case of an emergency.

As we know that, IC 555 timer is used in the Astable mode and so the frequency depends on the values of resistors R1=1Kohm, R2=100Kohm, R3=22Kohm, C1=10pF, C2=10microfarad The circuit has an on -off repeating time period of about 1 second by which we can get the time period of the circuit by using the frequency as 1 second. Now by determining the ON and OFF time period of the panic alarm circuit given above, we found that the circuit will remain on for about 0.845 seconds and off for about 0.152 seconds.

The procedure of the circuit is that when the button is pressed then the pin4 of IC 555 timer is given a high voltage then only IC is in the enable mode circuit and the alarm will work. And when the button is not pressed then the device will be in the disabled mode and hence the alarm will not work but the power supply will be provided all the time to the IC 555 and thus the circuit will run in the Astable mode only when the IC 555 is enabled. For demonstrating this experiment, a simple Buzzer is connected to theoutput of the IC 555.

9. APPLICATION

Panic alarms are worthless unless people know how to use them. So, this project helpsthe people in the following ways- This project helps the people from natural or man-made disaster comes. If any naturaldisaster comes like earthquake then the people who are trapped inside the building, if Panic alarm also helps from man-made disaster like man creating ground holes etc. Itis basically most helpful for blind person as well as mute person who can communicate easily with the help of the panic alarm. they trigger the panic alarm then it would be easy for them for the recoveree to recover them from the difficult situation and thus their lives could be saved.

10. CONCLUSION

In the end, we made an emergency panic alarm in low budget. By doing this experiment, we found that the model which was designed, was working in good condition. Nowadays it is urgent need for preventative measures to reduce the accidents caused by this natural disaster. An emergency panic alarmalso help the people from recovering from the accidents caused by this natural disaster. We have also successfully demonstrated this project by using proteus software.

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