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يُونِيسَيْتِي إِسْلَامِيَّةٌ أَنْتَارَايَغُسَا مَلَيْسِيَا

**KULLIYAH OF ENGINEERING
DEPARTMENT OF MECHATRONICS ENGINEERING**

**MCTE 2332
DIGITAL SYSTEM AND MICROPROCESSOR
SECTION 1**

DLD PROJECT

**PANIC ALARM
(WRITTEN REPORT)**

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CONTENT:

i) GOAL OF THE PROJECT

ii) DESIGN PROCESS

iii) DETAILED DESIGN

iv) DESIGN VERIFICATION

v) CONCLUSIONS

i) GOAL OF THE PROJECT

Panic alarms can be used when other forms of calling for assistance can be dangerous or unpleasant. For instance, the captain can alert the crewmate by pressing the panic alarm to send a signal on the ship that there has been danger approaching, and the other example is when someone enters your home, you can just push the alarm so that you can automatically call the police or security. Without attracting attention, a panic alarm may provide a fast and easy way to summon assistance. As it has easy to use and not so responsive hardware such as 555 timer, buzzer, resistor, push button, etc., it is made to work reliably. With a single button, it is very user-friendly to be pushed to manage the situation of panic without any difficulty. Panic buttons are usually installed in a place where they can be reached effectively.

ii) DESIGN PROCESS

In this project, the digital component that I use is a 555 ic timer. Other important components for the project to work are push button and mini buzzer. And then, there are 3 resistors and a capacitor. Software such as multisim and tinkercad are used to verify the design. It includes 3 files of multisim and only one circuit in the tinkercad. The first file of design process i use is by using a SR Flip flop in the 555 ic timer and another file is for the whole circuit design

Components :

555 IC

Resistor – $1K\Omega$

Resistor – $22K\Omega$

Resistor – $100K\Omega$

capacitor

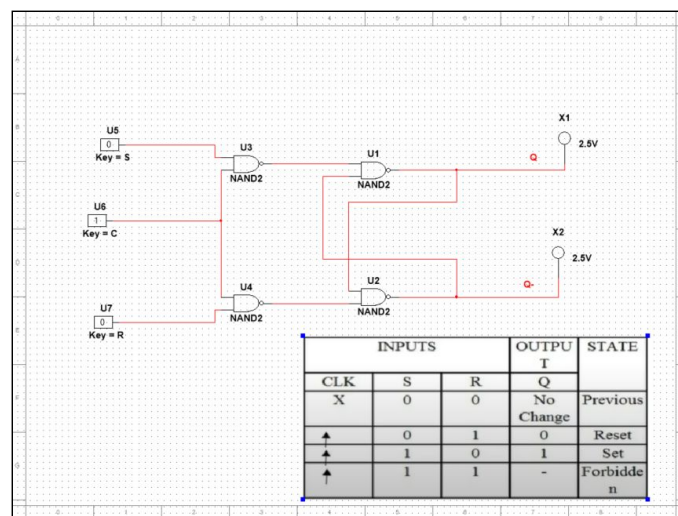
9V Battery

Push Button

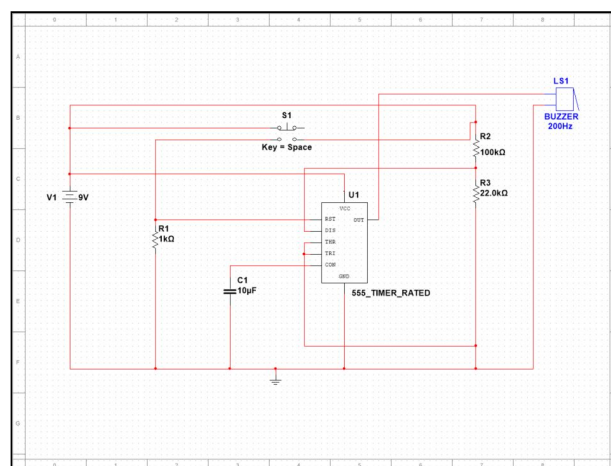
Mini Buzzer

iii) DETAILED DESIGN

Figure below shows how the SR flip flop works and there is a state table. There will be three inputs which are S inputs, R input and Clock input. The state of the output depends on the value of the SR input. The clock will be put to always HIGH in all conditions. To get the state of reset ($Q = \text{LOW}$), the S should be put LOW and R should be put HIGH. While for the state to be set state ($Q = \text{HIGH}$) the S is HIGH and R is LOW

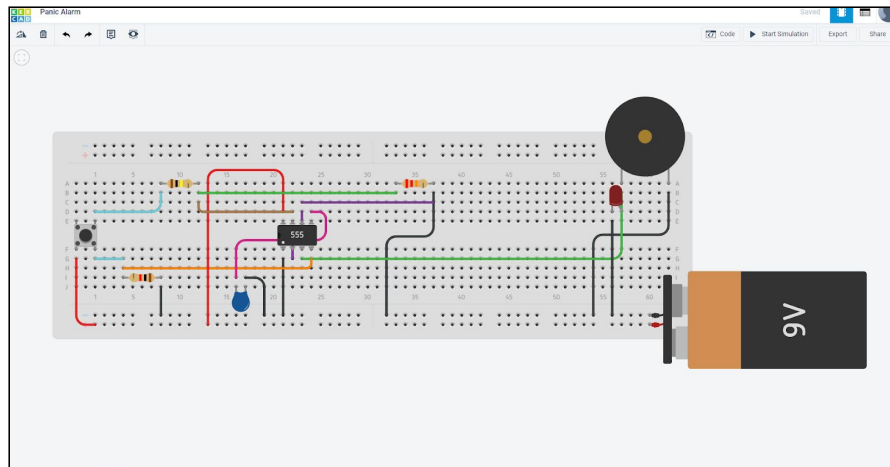


In the below picture, the circuit of the whole project can be seen here, I used the 9V DC power supply to generate this whole circuit to be working. It later connected to the push button and 555 IC which have the SR flip flop logic inside it and later connected to the buzzer. So, the flow is just simple, the user just need to press the push button and later the buzzer will activate and produce sound



iv) DESIGN VERIFICATION

Here is the connection in the tinkercad for the verification. It is just same like the circuit design like I explained in the multisim section of the circuit above, except here i added red LED for the user easy to see because the light that produce from the LED



v) CONCLUSIONS

As stated at the beginning, this project concludes that it is working perfectly. Although it is a very simple circuit, it can contribute and give a lot of benefit for the communities or in daily life. This project can be made more advance like added some component to be more features and more useful