Fastest fingers first for quizzes

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Introduction

- This mini project Fastest Fingers First can be used in quiz competitions and other group activities. Quiz-type game shows are increasingly becoming popular on television these days.
- In such games, fastest finger first indicators are used to test the player's reaction time.The player's designated number is displayed when the player presses his entry button.
- The circuit presented here determines as to which of the three contestants first pressed the button and locks out the remaining two entries.

Components Required

- Breadboard
- 555 timer IC's
- Momentary Push buttons
- Three-10K resistors
- Three-1K resistors
- Three-220ohm resistors
- Connecting wires
- LEDs
- P-N diodes
- 5 volts battery

IC Pin Diagram

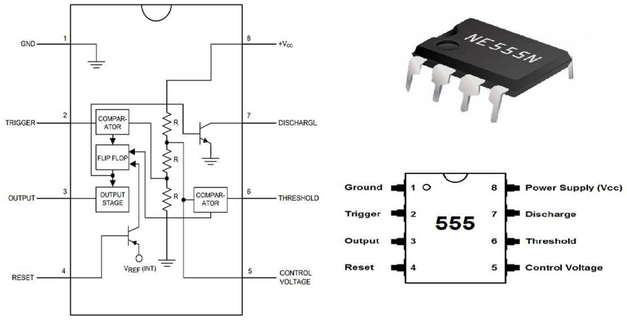

Fig. 1 555 Timer IC pin diagram

Features of 555 Timer

- Adjustable Duty Cycle
- The maximum power dissipation is 600 mW.
- The 555 timer IC has basically three operating modes such as Astable mode, Monostable mode and Bistable mode.
- Available in 8-pin Package
- It can be operated in +5V to +18V range.

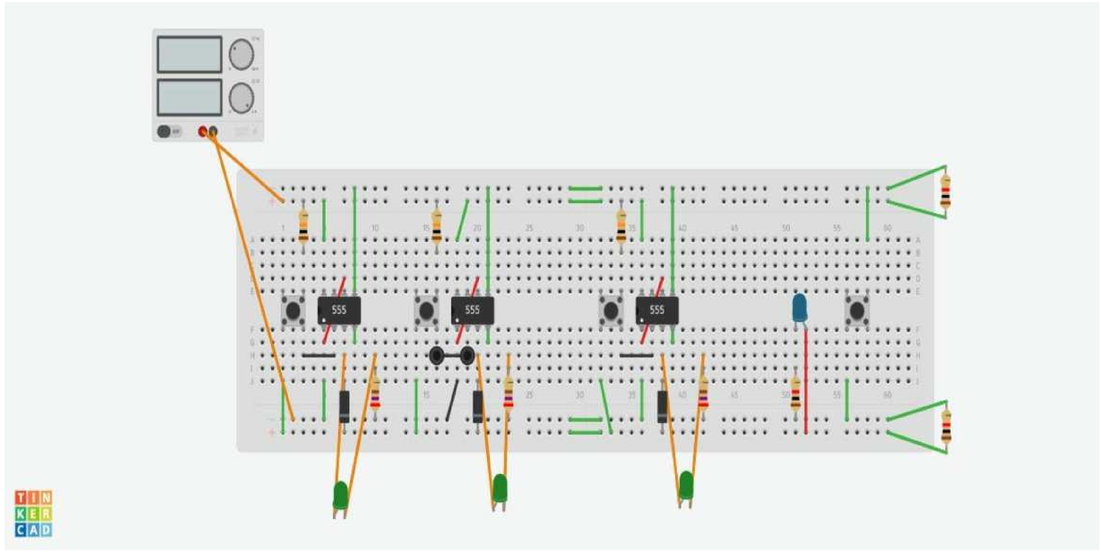

Fig. 2-Circuit Diagram

Explanation

- As the name suggests there are some push buttons that have to be pressed and the team which presses the button first will allow to speak first. In this fastest finger first circuit
- There is an LED for each team that glows when the button is pressed. Once the LED of any team is turned on , the LED for other teams will not glow if they push the button later.
- There is a status LED that indicates that someone has pressed the button or the LED of someone's team is on. We can also reset all the LED's by pressing the reset button.

Working

- The power supply is designed to provide +5V regulated DC voltage.
- Initially the circuit is in RESET condition .
- As soon as the circuit is switched on and given power supply , all the LED's switch ON.
- Now once the reset button is pressed all the LED's are switched OFF and the circuit functions as FFFI.

Advantages

- Fastest response
- Highly sensitive
- Low cost
- Reliable circuit
- Easy to make
- User friendly

Applications

- In Quiz Competitions
- Entertainment purpose

Hardware Implementation

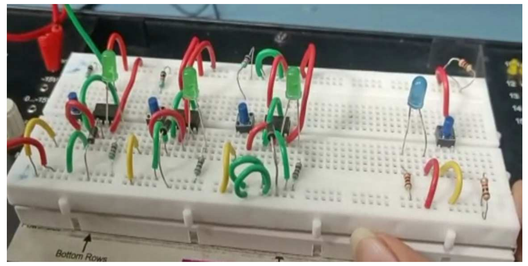

Fig. 3-Before Pressing the button

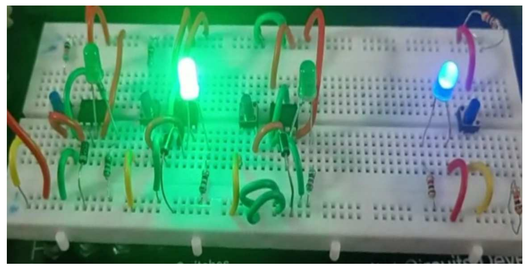

Fig. 4-After Pressing the button

Conclusion

- The circuit was first simulated in Tinkercad and also in proteus software. Then the circuit was implemented successfully on breadboard using required components.
- Although we have only made the circuit for three users, This simple and affordable circuit can be easily made for any number of users.
- This circuit has the advantage to detect the first hit by user even when the difference of time in pressing is in milli seconds.

References

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[3] https://techatronic.com/fastest-finger-first-circuit-using-555-timer-ic/