

Micro-controller Based Touch Switch

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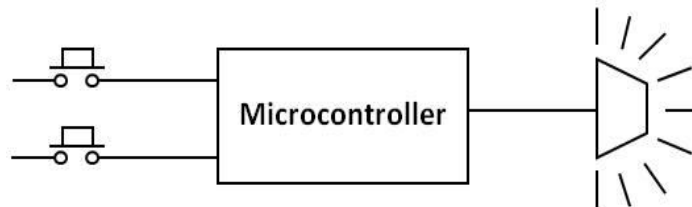
Abstract: This paper presents about the micro-controller based touch switch using micro-controller chip ATmega8 based on C language and the name of this program is AVR Studio. This proposed micro-controller based touch switch is a digital switch. This system is more reliable than others.

Index Item: Introduction, Block Diagram, Circuit Diagram, Circuit Description.

I. Introduction

Already touch switch are used in a factory or house. But that was an analog system. That is more costly. The functions of that system are more difficult and need a lot of components. But our proposed system, Micro-controller based touch switch, is possible to more than one switch to add here. That's why, it is a digital process. In this proposed system there are some advantages- cost is low, functions are not difficult. It is suitable to utilize in household chore.

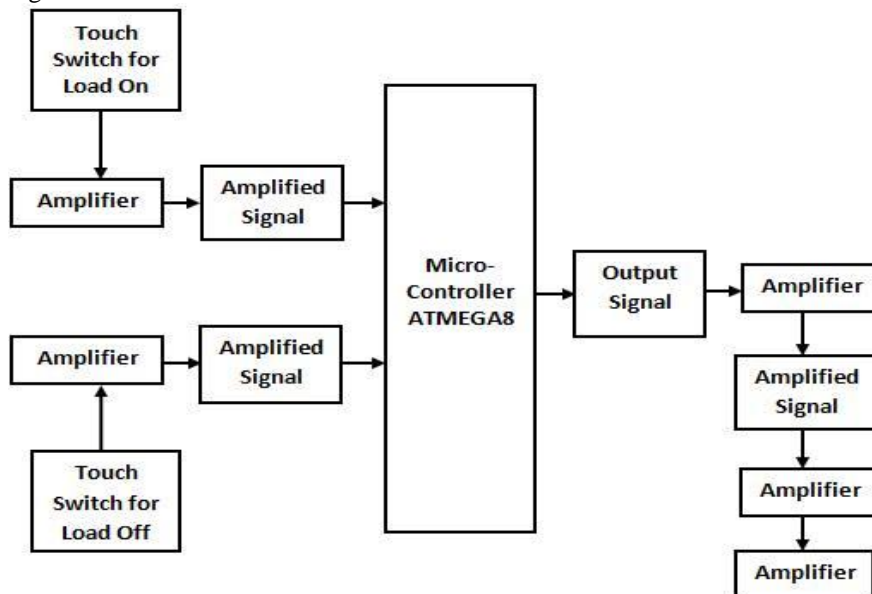
II. Methodology



- Take the input signal by CPU.
- ON the load by CPU.
- Take the input signal again by CPU.
- OFF the load by CPU.

III. Block Diagram

The block diagram of Micro-controller Based Touch Switch shown in below:

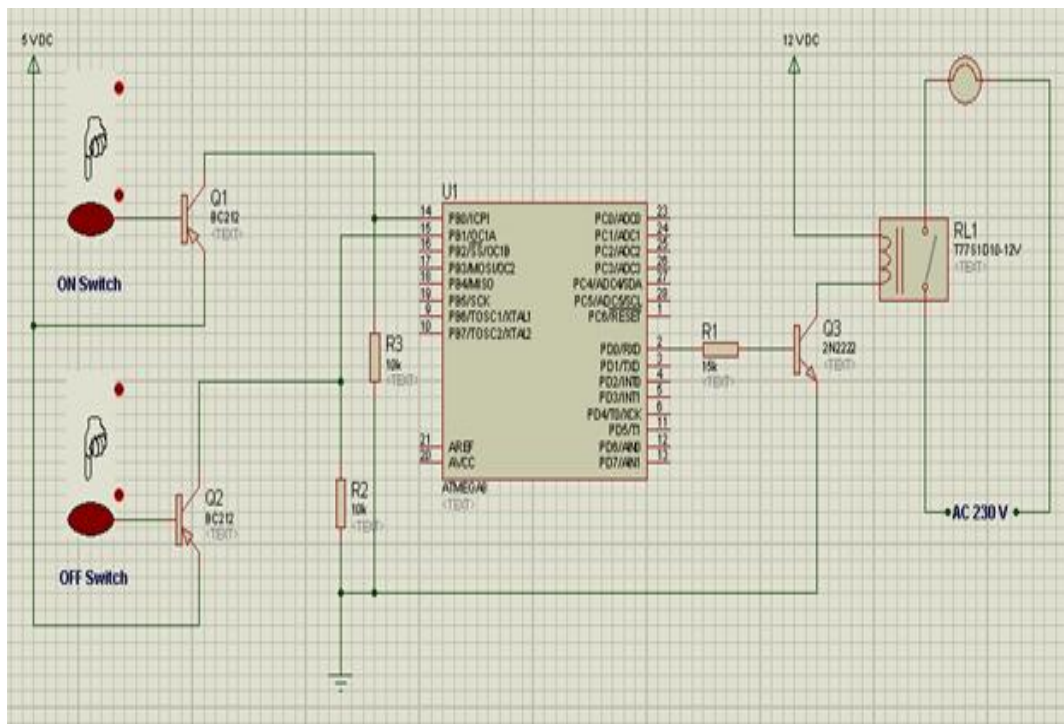


IV. Working Principle

Micro-controller gets the signal from the touch point and turn ON the load by relay. Again Micro-controller gets the signal from the touch point and turn OFF the load by relay.

V. Component Used

- Board, for making the whole system.
- Touch Point, for to touch whether this system is ON or OFF.
- 2N2222 Transistor, for amplifying the signal.
- Micro-controller ATmega8, for controlling the whole system of touch switch.
- Resistor, for reducing voltage.
- IC 7805, for supplying +5V as a power supply to micro-controller and other device.
- Relay, for handle high voltages.



VI. Circuit Operation

At first we select a touch “ON” point whether it is aluminum or simply a point in a board.

When we touch the selected point then the signal goes to the Micro-controller input pin through the base of pnp transistor.

When the signal is in the input pin of the Micro-controller then it creates +5 Volt signal. Then the +5 Volt signal go to the output pin of the Microcontroller.

But from +5 Volt signal it is not possible to ON or OFF a large amount of load. So, we use here transistor as a switch.

Then the +5 Volt Microcontroller goes to the base of npn transistor through resistor. On that time resistor is ON.

Then we add a relay to the output of transistor. When the transistor is ON, then the relay is also ON. On that time the NO (Normally Open) terminal of the relay is close. So, the light/fan is ON.

Then we touch the “OFF” point in the board. Here again create another signal.

This signal goes to the input pin of the Micro-controller through the base of pnp transistor.

Then again it also creates +5 Volt signal. Then this +5 Volt signal again go to the output pin of the Micro-controller for taking “OFF” the previous signal.

On that time the power is OFF on the base of npn transistor. When the transistor is OFF then the relay is also OFF. On that time the NO (Normally Open) terminal of the relay is open. So, the light/fan is OFF.

VII. Algorithm

- Step – 1 Small signal as an input for Load ON
- Step – 2 Input signal amplification
- Step – 3 CPU
- Step – 4 Output signal amplification
- Step – 5 Relay switch
- Step – 6 Load ON
- Step – 7 Small signals as an input for Load Off
- Step – 8 Input signal amplification
- Step – 9 CPU
- Step – 10 Output signal amplification
- Step – 11 Relay switch
- Step – 12 Load OFF

VIII. Conclusion

It's a smart system to OFF or ON a load. If we use this system, it is possible to increase the stability of the light or fan. If we touch with wet hand in the touch point of the system, the possibility to get electric shock decreases. That's why; it's a safe system than others.

IX. Future Scope

- It is possible from this system to control a large switch board of a large factory from small panel.
- We can control the system by remote control, Bluetooth and internet.
- It can be possible to control the load of our own house from a large distance.

X. Acknowledgement

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