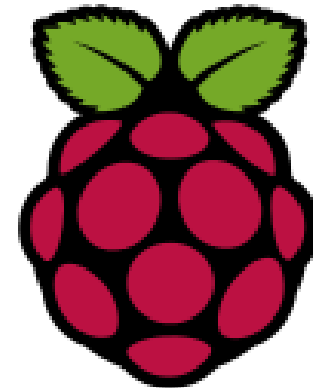


# Home Appliances control using Raspberry Pi



Tushar B. Kute,  
<http://tusharkute.com>

# Relay

- The main usage of the Relay was seen in the history for transmitting and receiving the information.
- That was called as Morse code where the input signals used to be either 1 or 0, these change in signals were mechanically noted in terms of ON and OFF of a light bulb or a beep sound, it means those pulses of 1s and 0s are converted as mechanical ON and OFF using electromagnets.
- Later this was improvised and used in various applications.

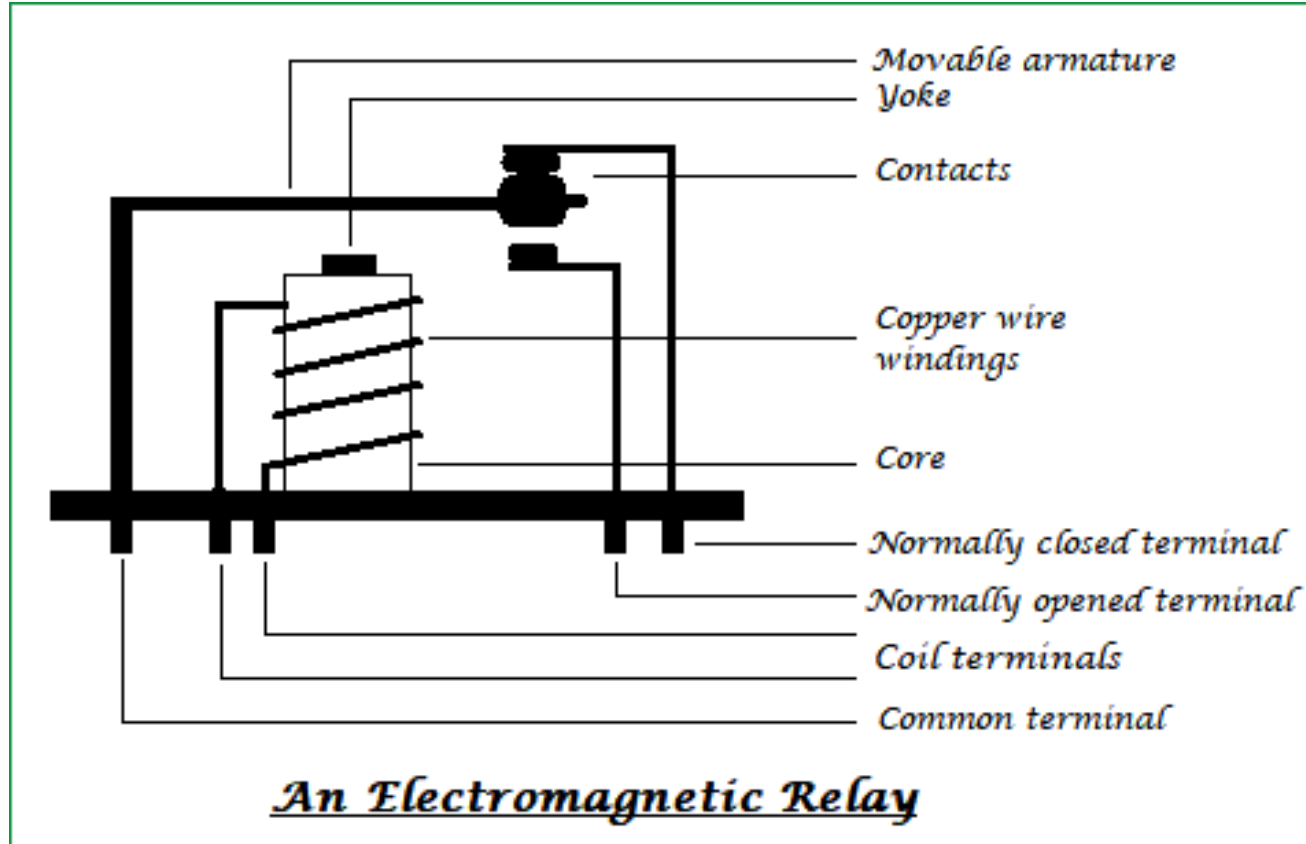
# What is Relay?

- A relay is classified into many types, a standard and generally used relay is made up of electromagnets which in general used as a switch.
- Dictionary says that relay means the act of passing something from one thing to another, the same meaning can be applied to this device because the signal received from one side of the device controls the switching operation on the other side.
- So relay is a switch which controls (open and close) circuits electromechanically.

# What is Relay?

- The main operation of this device is to make or break contact with the help of a signal without any human involvement in order to switch it ON or OFF.
- It is mainly used to control a high powered circuit using a low power signal.

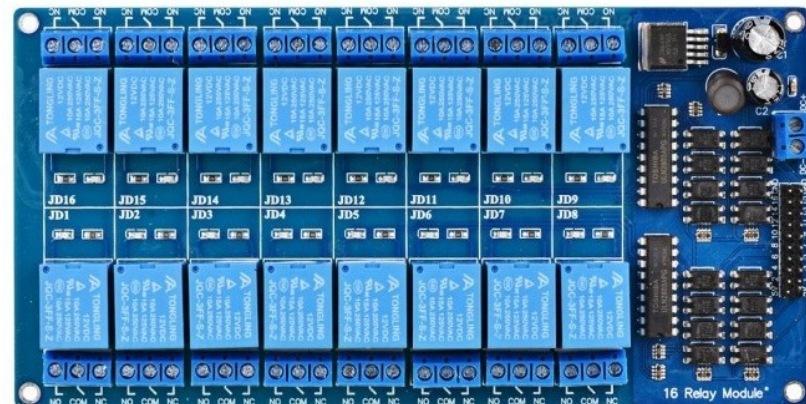
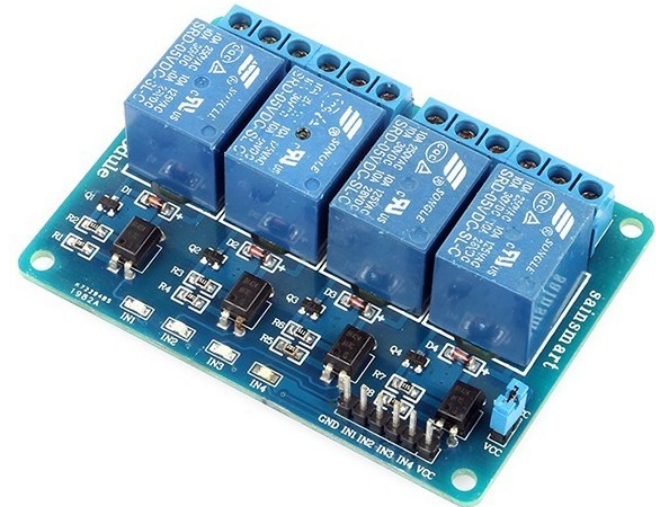
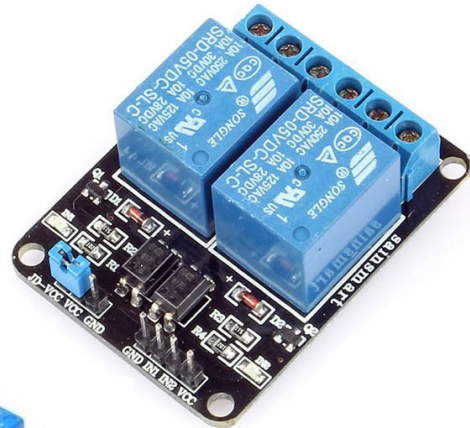
# The Electromagnetic relay



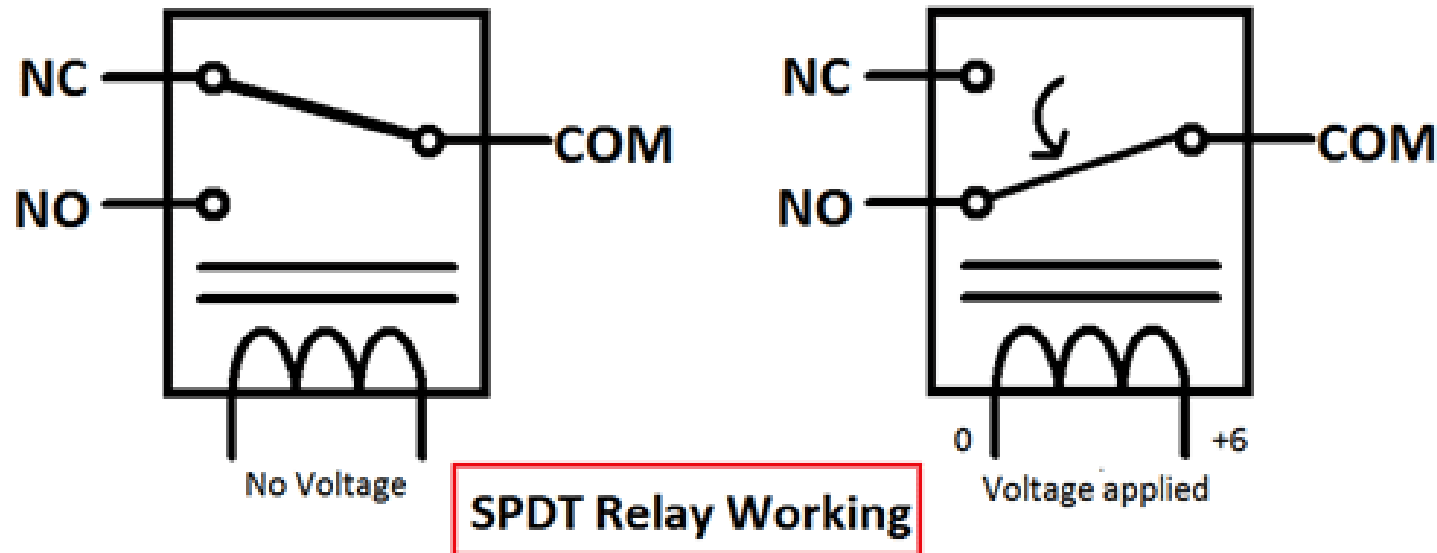
# Two Channel Relay



# Various Relays Available



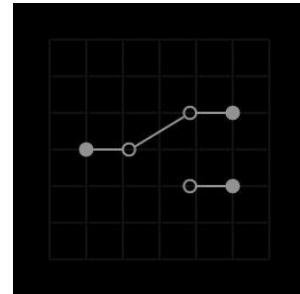
# The Relay Circuit





# Single Pole Double Throw Relay

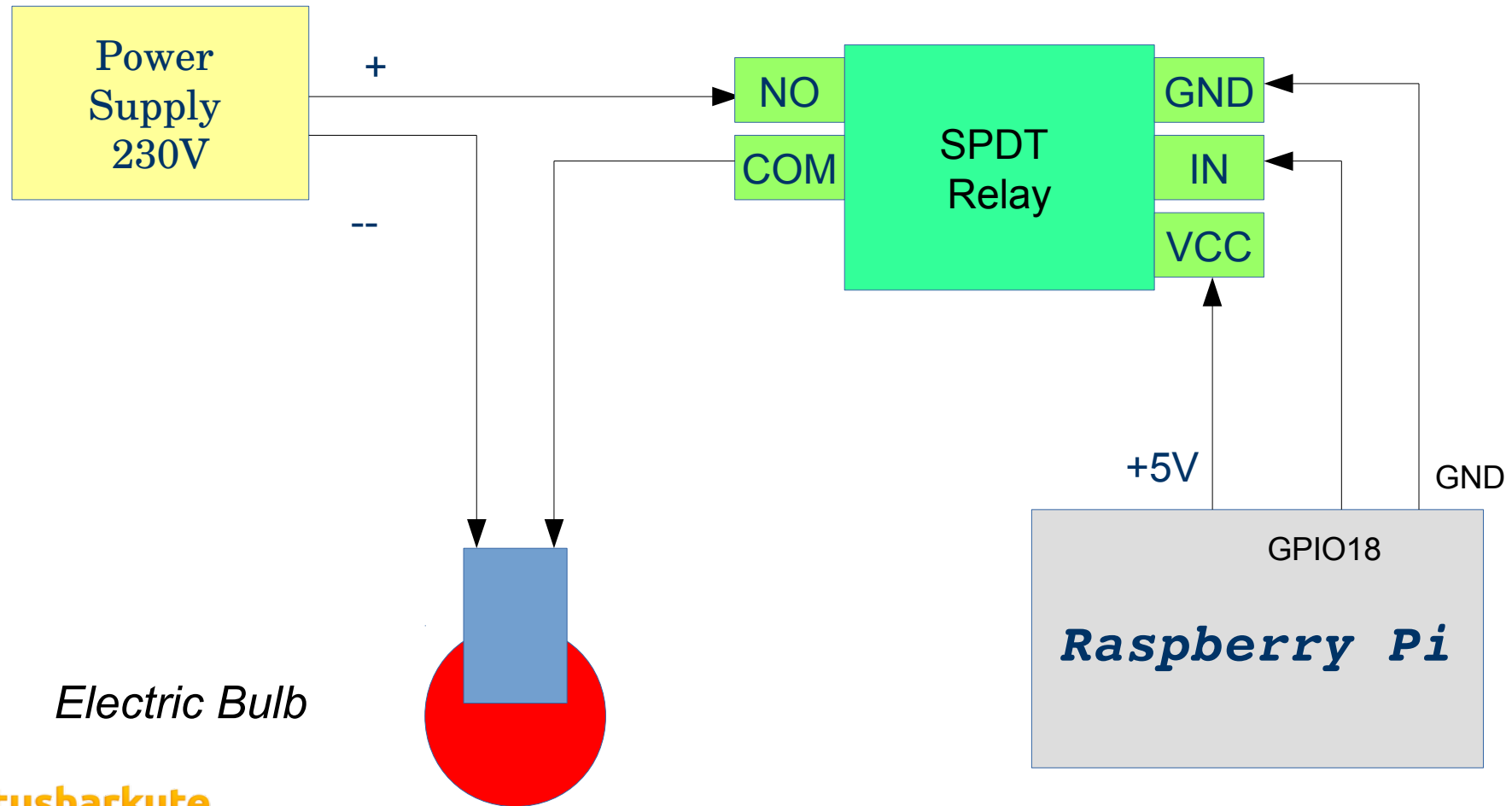
- This type of switches consists of only one pole but has two throws.
- So, the contact is always made to either of the terminals. A slide switch can be considered as its example.
- The slider is always connected to either of the contacts i.e., a closed path always exists all the time if both the terminals are connected to a circuit.



# Example:

- Develop a Real time application like smart home with the requirements of controlling the electric appliances like fan, light etc.

# The Circuit Design



# Code

```
import RPi.GPIO as GPIO
import time
GPIO.setmode(GPIO.BCM)
GPIO.setup(18, GPIO.OUT)
try:
    while True:
        print("LIGHT OFF")
        GPIO.output(18, GPIO.HIGH)
        time.sleep(3)
        print("LIGHT ON")
        GPIO.output(18, GPIO.LOW)
        time.sleep(3)
except KeyboardInterrupt:
    GPIO.output(18, GPIO.LOW)
    GPIO.cleanup()
```

# Assignment:

- Develop a Real time application like smart home with the requirements of controlling the electric appliances like light. *Develop a web application using HTML-PHP.*

# Thank you

*This presentation is created using LibreOffice Impress 4.2.8.2, can be used freely as per GNU General Public License*



@mitu\_skillologies



/mITuSkillologies



@mitu\_group

## Web Resources

<http://mitu.co.in>  
<http://tusharkute.com>

## Blogs

<http://digitallocha.blogspot.in>  
<http://kyamputar.blogspot.in>

**[tushar@tusharkute.com](mailto:tushar@tusharkute.com)**