Computer peripherals and interfaces

CS422, MINI PROJECT

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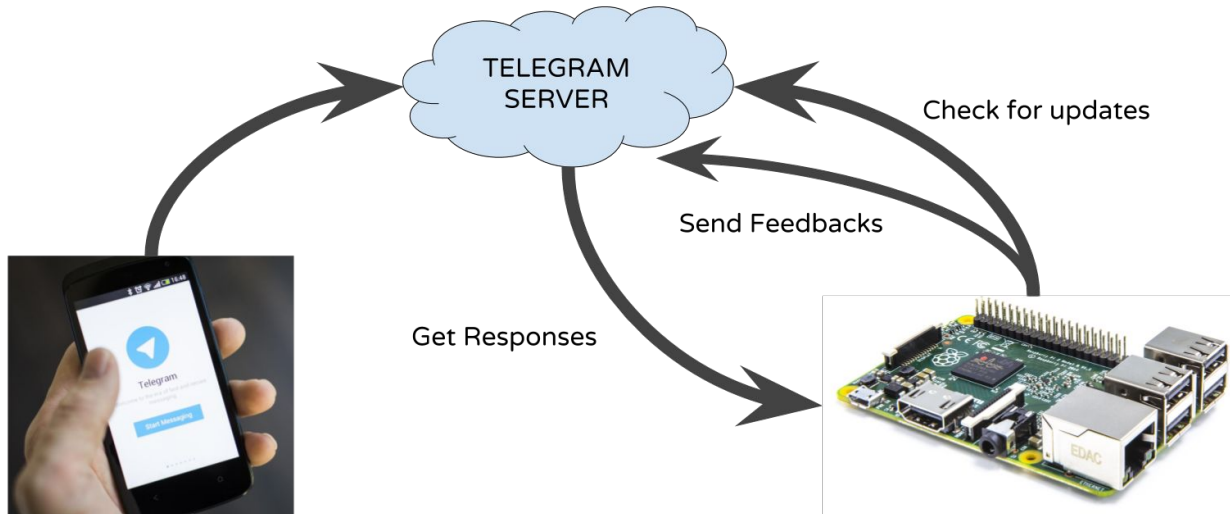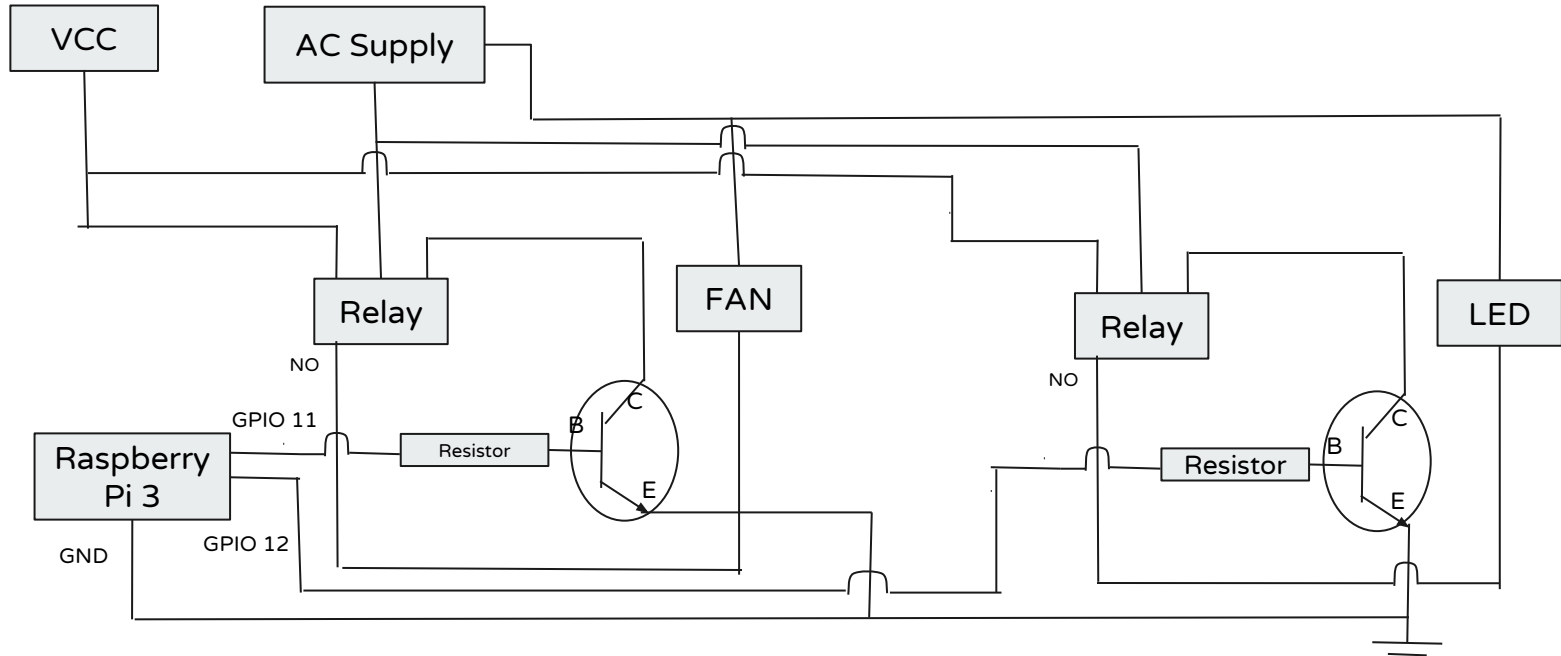# HOME AUTOMATION USING TELEGRAM

Introduction

➢ Home automation is building automation for home which involves control and automation of various home devices via internet.

➢ The idea is to develop a telegram bot, running on Raspberry Pi, that receives commands via Telegram chats.

➢ Connected to the raspberry pi, Fan and light to be controlled remotely using telegram chats.

Workflow

TELEGRAM SERVER

Check for updates

Send Feedbacks

Get Responses

Circuit diagram

Working Model

# Working Model (continued)
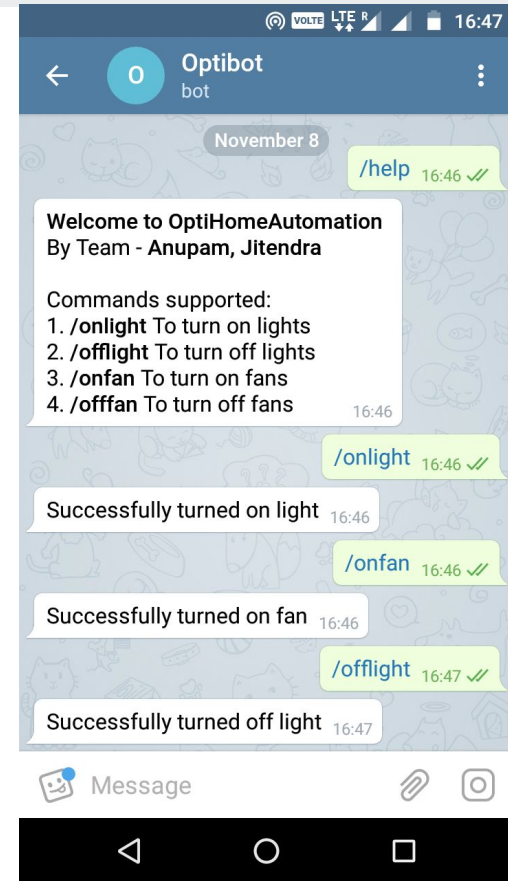
Materials used

➢ Raspberry Pi 3.0
➢ Telegram Bot API to build a telegram bot
➢ Home Appliances - 1 x FAN, 1 x LED
➢ Transistor - 2N3904
➢ Relay
➢ Resistance - 2.18 kΩ
➢ Breadboard
➢ Adapter - 5V DC
➢ Jumping Wires

Raspberry Pi

➢ Pi is low cost, **small computer** that plugs into a monitor and uses a standard keyboard and mouse.

➢ It's capable of doing everything you'd expect a desktop computer to do.
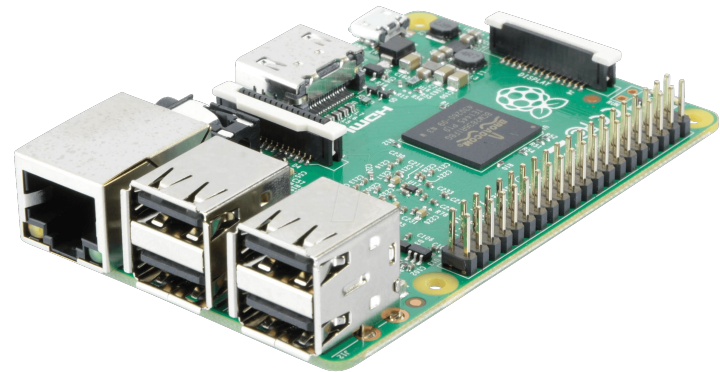
Raspberry Pi pin diagram
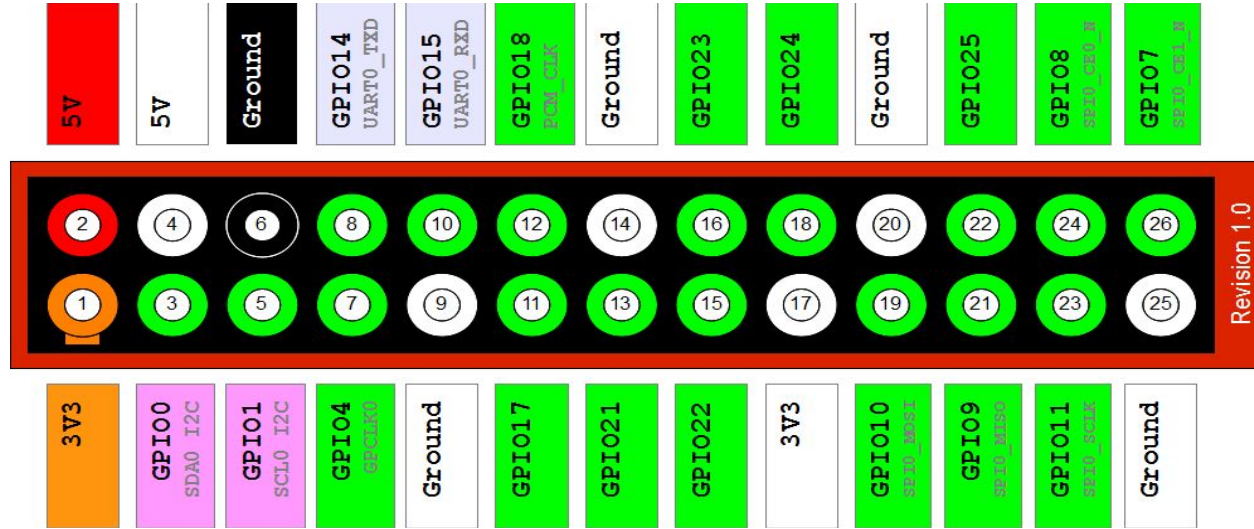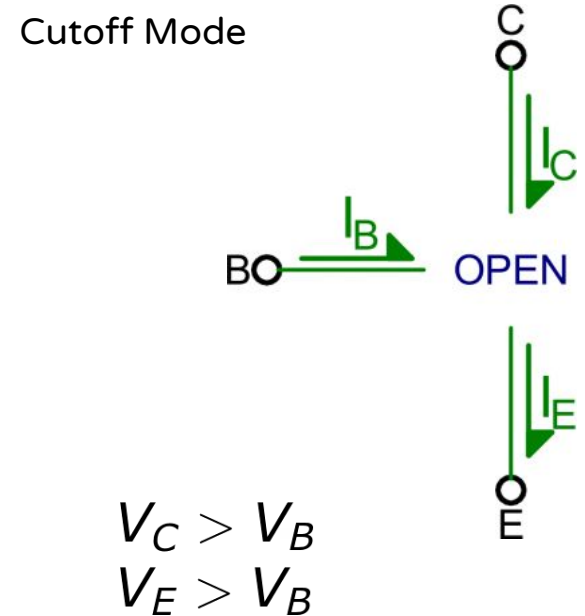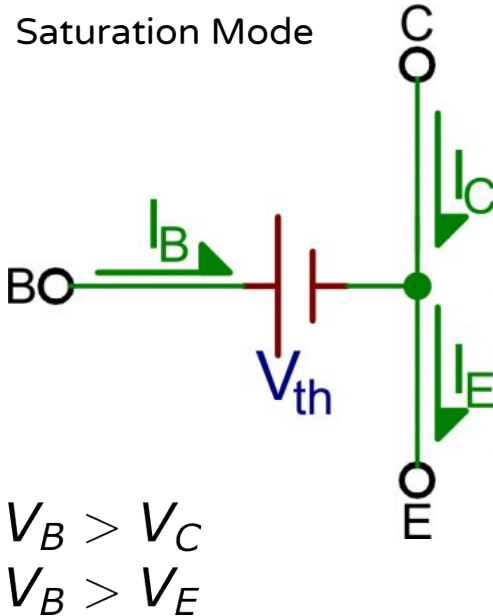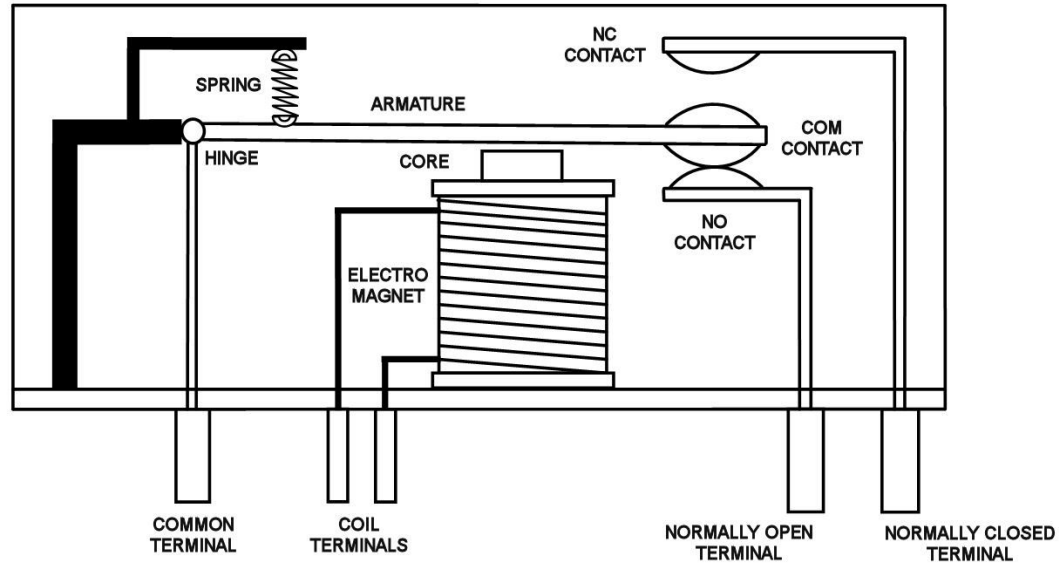
Telegram Bot API

➢ Telegram bots are third-party applications that run inside Telegram.

➢ API Used for our purpose:
   ○ getUpdates
      ■ to receive incoming updates using long polli
   ○ sendMessage
      ■ to send text Feedback.

Transistor - 2N3904

Saturation Mode

Cutoff Mode

$V_B > V_C$
$V_B > V_E$

$V_C > V_B$
$V_E > V_B$

Relay

Relay continued …

➢ Relays are switches that open and close circuits electromechanically.
➢ Relays control one electrical circuit by opening and closing contacts in another circuit
➢ States
  ○ NC - Normally closed i.e. relay is not energized
  ○ NO - Normally opened i.e. relay is energized.

References

- ➢ https://core.telegram.org/bots#3-how-do-i-create-a-bot
- ➢ https://www.raspberrypi.org/
- ➢ https://core.telegram.org/bots/api#getupdates
- ➢ https://core.telegram.org/bots/api#sendmessage
- ➢ http://www.galco.com/comp/prod/relay.htm
- ➢ https://learn.sparkfun.com/tutorials/transistors

THANK YOU!