

# Interfacing Port Expander MCP23017 IC

e-Yantra Team  
Embedded Real-Time Systems Lab  
Indian Institute of Technology-Bombay

IIT Bombay  
July 4, 2016



# Port Expander



# Port Expander

Function:



# Port Expander

**Function:** It is used to increase IO pins of microcomputer.



# Port Expander

**Function:** It is used to increase IO pins of microcomputer.

- Since there are only 26 GPIO pins available on Raspberry Pi.



# Port Expander

**Function:** It is used to increase IO pins of microcomputer.

- Since there are only 26 GPIO pins available on Raspberry Pi.
- Port expander is used to increase GPIO pins of Raspberry Pi.



# About MCP23017 IC



# About MCP23017 IC

- ① It is a 28 pin IC.





# About MCP23017 IC

- ① It is a 28 pin IC.
- ② It consists of two ports having 8 pins each available for GPIO.



# About MCP23017 IC

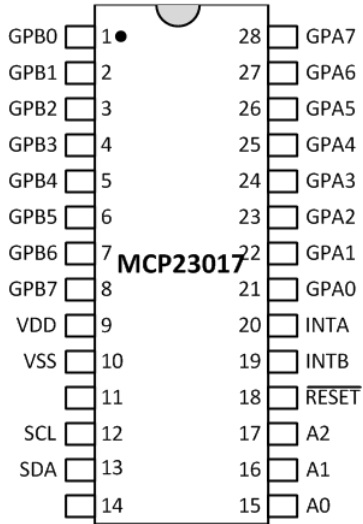
- ❶ It is a 28 pin IC.
- ❷ It consists of two ports having 8 pins each available for GPIO.
- ❸ It uses I2C protocol to communicate with Raspberry Pi.



# Pins of MCP23017



# Pins of MCP23017



# Experiment



# Experiment

## Interfacing an LED and switch to Raspberry Pi using MCP23017 IC



# Hardware required for the experiment:



# Hardware required for the experiment:

1. Breadboard





# Hardware required for the experiment:

1. Breadboard
2. MCP23017 IC



# Hardware required for the experiment:

1. Breadboard
2. MCP23017 IC
3. Switch



# Hardware required for the experiment:

1. Breadboard
2. MCP23017 IC
3. Switch
4. LED



# Hardware required for the experiment:

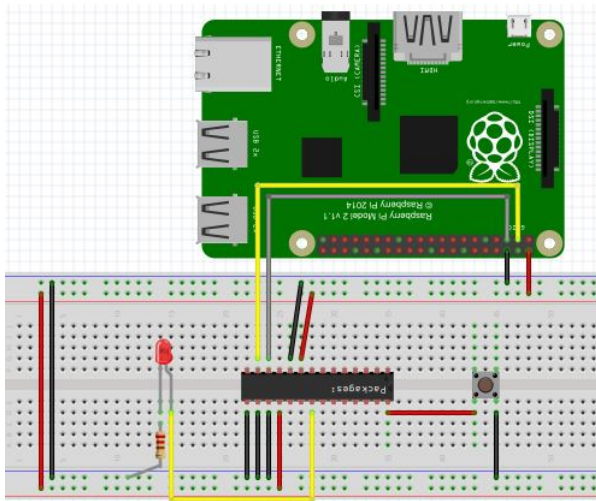
1. Breadboard
2. MCP23017 IC
3. Switch
4. LED
5. 330 ohm resistor



# Connections:



## Connections:



# Problem Statement



# Problem Statement

**Turn on the LED for 1 second when button is pressed.**





# Thank You!

Post your queries on: <http://qa.e-yantra.org/>

