Hello Friends, Welcome to the video tutorial on the Raspberry Pi.

In this tutorial we will learn how serial communication takes places between raspberry pi and other devices using Bluetooth module and zigbeee module

So, first question arises. What is UART? The universal asynchronous receiver/transmitter (UART) takes bytes of data and transmits the individual bits in a sequential fashion. At the destination, a second UART re-assembles the bits into complete bytes.

Notice that the transmission begins with a start bit followed by DO, which is the LSB, then the rest of the bits until the MSB (D7), and finally, the one stop bit indicating the end of the character A.

In raspberry pi we have to enable UART interface for serial communication.

Connect to raspberry pi

To make Raspberry Pi Compatible for Serial communication we need to

follow the following steps:

We have to make changes to the configuration file ***cmdline.txt***

Before making any changes to this configuration file, save the file in

the case you make any mistake.

File /boot/cmdline.txt contains the kernel options that are used to

boot the system.

So do not make any other changes.

In the Terminal window type the command:

sudo nano /boot/cmdline.txt and hit enter

Now a window will open showing the following options:

Remove this serial reference by taking away the option “console=ttyAMA0,115200”

Ctrl+x than press y and hit return.

After making these changes reboot the system so that they take effect. With these changes the RPi will not use the serial port at all, so the port will be free to any application.

Experiment:

Communication between rpi and android device using Bluetooth module.

Hardware required for the experiment are:

1. Bluetooth module

Vcc of Bluetooth module is connected to 5V.

TXD pin of Bluetooth module is connected to RXD pin(ie pin 10) of rpi.

RXD pin of Bluetooth module is connected to TXD pin(i.e pin 8) of rpi.

GND of Bluetooth module is connected to Gnd pin(i.e. pin 6) of rpi.

Software required on android device is blueterm.

Since Bluetooth module comes preconfigured from factory with pin 1234.

Pair Bluetooth modules with android device.

Problem statement

Send data from rpi and display it on blueterm app.

After connections next part is code.

########### Import the libraries ###############

import serial # to get accces to serial port

import time

#serial Driver Initialization

ser=serial.Serial('/dev/ttyAMA0',baudrate=9600,

parity=serial.PARITY\_NONE,

stopbits=serial.STOPBITS\_ONE,

bytesize=serial.EIGHTBITS,timeout=3)

# Function to read Serial data

# Function name :read

# Input : ser

# Output : read\_value

# Example call: read(ser)

def read(ser):

read\_value=""

while True:

ch=ser.read() # reads the data

read\_value+=ch # appends the string in read\_value

if ch=='\r' or ch=='':

return read\_value

try:

while True:

ser.write("\r\nHi I am Raspbian Jessie:")

# writes the data to serial terminal

re\_va=read(ser)

print("Received String :")

ser.write("\r\n"+repr(re\_va)) # writes the data received

print (re\_va)

except KeyboardInterrupt:

pass