I2c Raspberry pi and Arduio uno Connection









Wiring is also as per requirement

Arduino Uno SCL – connected to SCL Raspberry pi

Arduino Uno SDA – connected to SDA Raspberry pi



**Codes deployed in Arduino Uno for Slave Device**

const int I2C\_ADDRESS = 2;

#include <Wire.h>

volatile int pinConfig;

volatile int PWMConfig;

volatile int digitalIn;

volatile int analogIn[4];

volatile int digitalOut;

volatile int PWMOut[6];

void setup()

{

 Wire.begin(I2C\_ADDRESS);

 Wire.onReceive(receiveEvent);

 Wire.onRequest(requestEvent);

 Serial.begin(9600);

}

void loop()

{

 for (int i = 0; i<14; i++){

 bool mode = bitRead(pinConfig, i);

 bool pwm = bitRead(PWMConfig, i);

 byte pwmvalue;

 if (mode)

 {

 pinMode(i,OUTPUT);

 if(pwm){

 switch (i){

 case 3:

 pwmvalue = PWMOut[0];

 break;

 case 5:

 pwmvalue = PWMOut[1];

 break;

 case 6:

 pwmvalue = PWMOut[2];

 break;

 case 9:

 pwmvalue = PWMOut[3];

 break;

 case 10:

 pwmvalue = PWMOut[4];

 break;

 case 11:

 pwmvalue = PWMOut[5];

 break;

 }

 analogWrite(i,pwmvalue);

 }

 else

 {

 digitalWrite(i,bitRead(digitalOut,i));

 }

 }

 else{

 pinMode(i,INPUT);

 }

 }

 for (int i = 0; i<14; i++){

 if (!bitRead(pinConfig, i))

 bitWrite(digitalIn, i, digitalRead(i));

 }

 for (int i = 0; i<4; i++){

 analogIn[i] = analogRead(i);

 }

}

void receiveEvent(int howMany)

{

 byte receiveBuffer[12];

 int i=0;

 while( Wire.available())

 {

 receiveBuffer[i] = Wire.read();

 i++;

 }

 pinConfig = receiveBuffer[1]\*256 + receiveBuffer[0];

 PWMConfig = receiveBuffer[3]\*256 + receiveBuffer[2];

 digitalOut = receiveBuffer[5]\*256 + receiveBuffer[4];

 for (int j=0;j<6;j++){

 PWMOut[j] = receiveBuffer[6+j];

 }

}

void requestEvent()

{

 int sendBuffer[5];

 sendBuffer[0] = digitalIn;

 for (int i = 0; i<4; i++){

 sendBuffer[1+i] = analogIn[i];

 }

 Wire.write((uint8\_t\*)&sendBuffer,10);

}