CapTouch Arduino Shield

Page 2. Master & Slave Pin Connect

Master

Arduino UNO

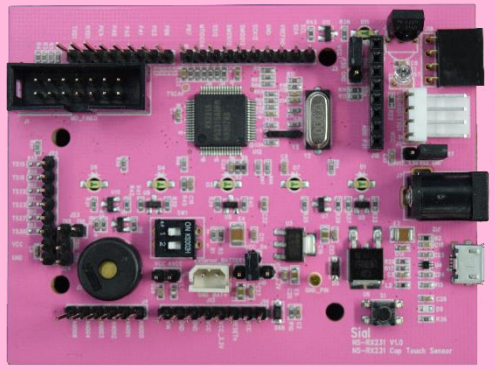
SPI Communicaition

SCK	→	SCK12
MISO	←	SMISO12
MOSI	→	SMOSI12
SS	→	SS12

External Interrupt

D2	→	PE5
D3	←	PA6

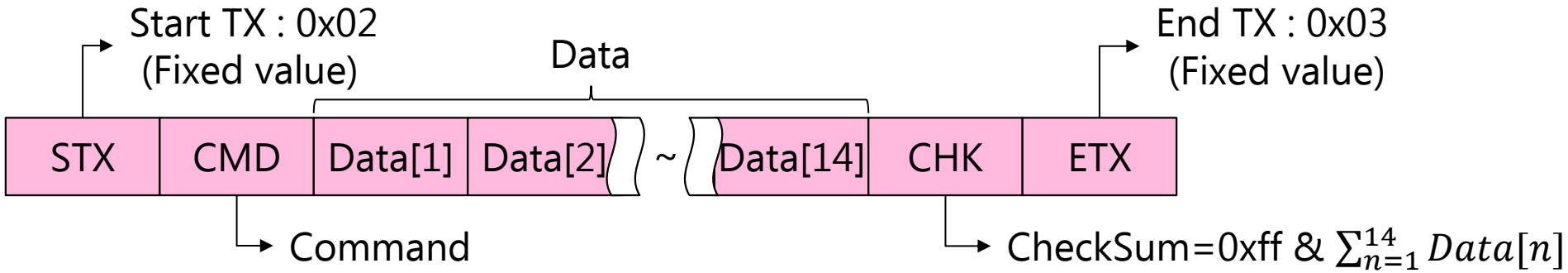
Slave



NS-RX231

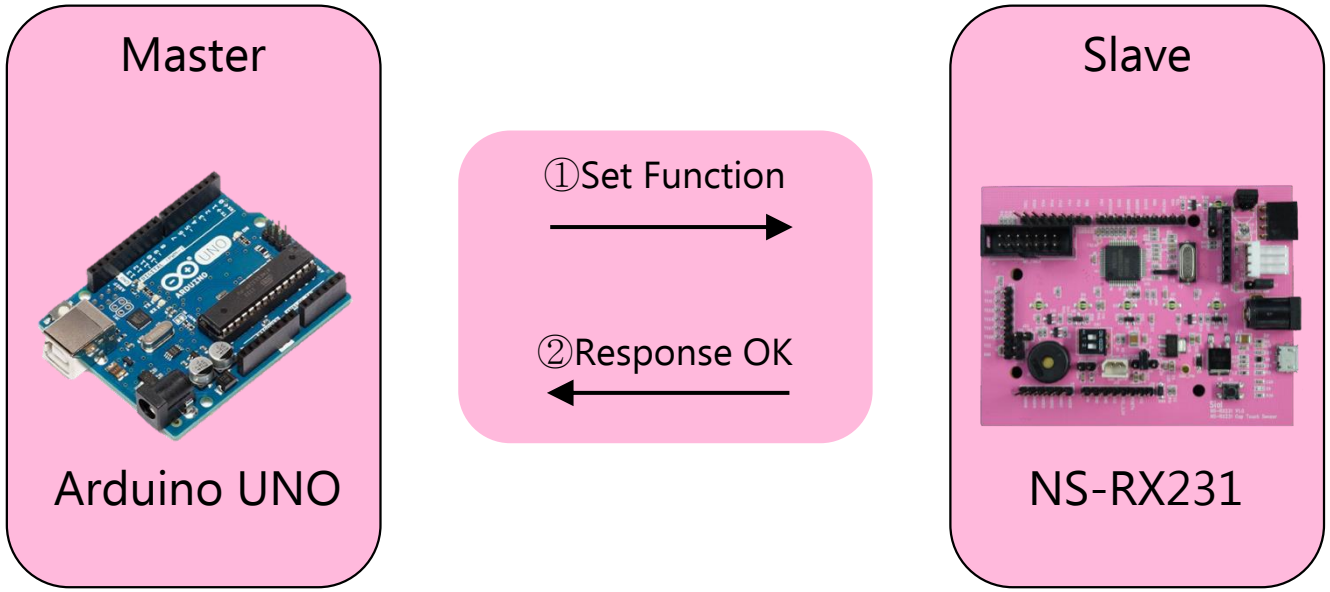
*picture
Uno - https://www.arduino.cc/en/Main/ArduinoBoardUno
Sakura - http://gadget.renesas.com/en/product/sakura.html

Protocol



	Function	Value
Command	IR TX	0x01
	IR RX	0x03
	Speaker	0x04
	Bluetooth	0x10
	MPU6050	0x20
	LED	0x40
	Setting	0x80

Page 4. Function Configuration



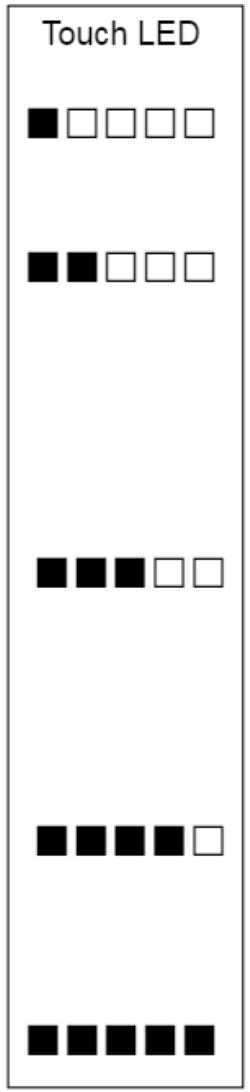
Setting CMD

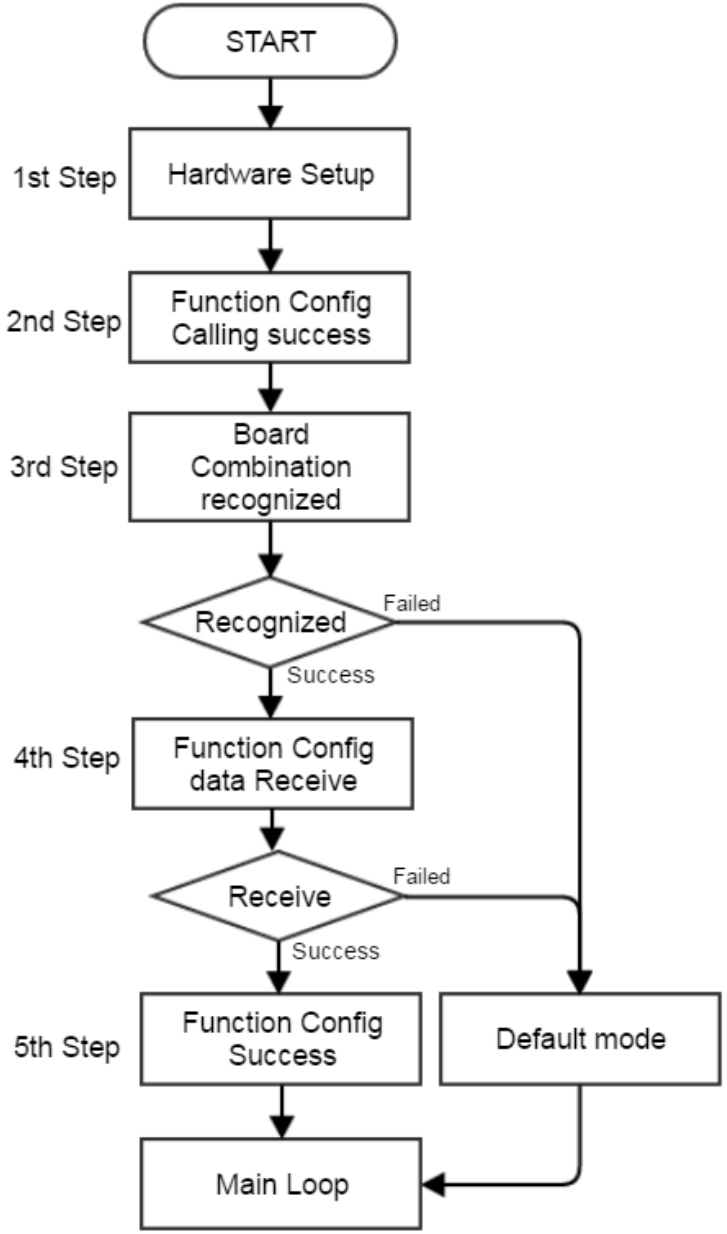
CheckSum

0x02	0x80	Data1	Data2	~	Data14	CHK	0x03

Code of the desired function

IR TX	0x01
IR RX	0x03
Speaker	0x04
Bluetooth	0x10
MPU6050	0x20

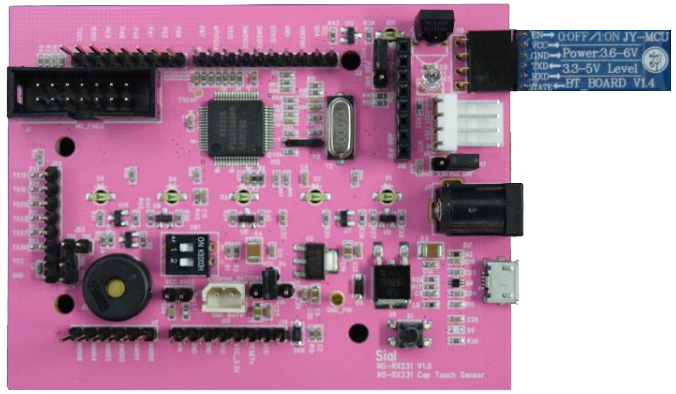




Page 5. Default Mode

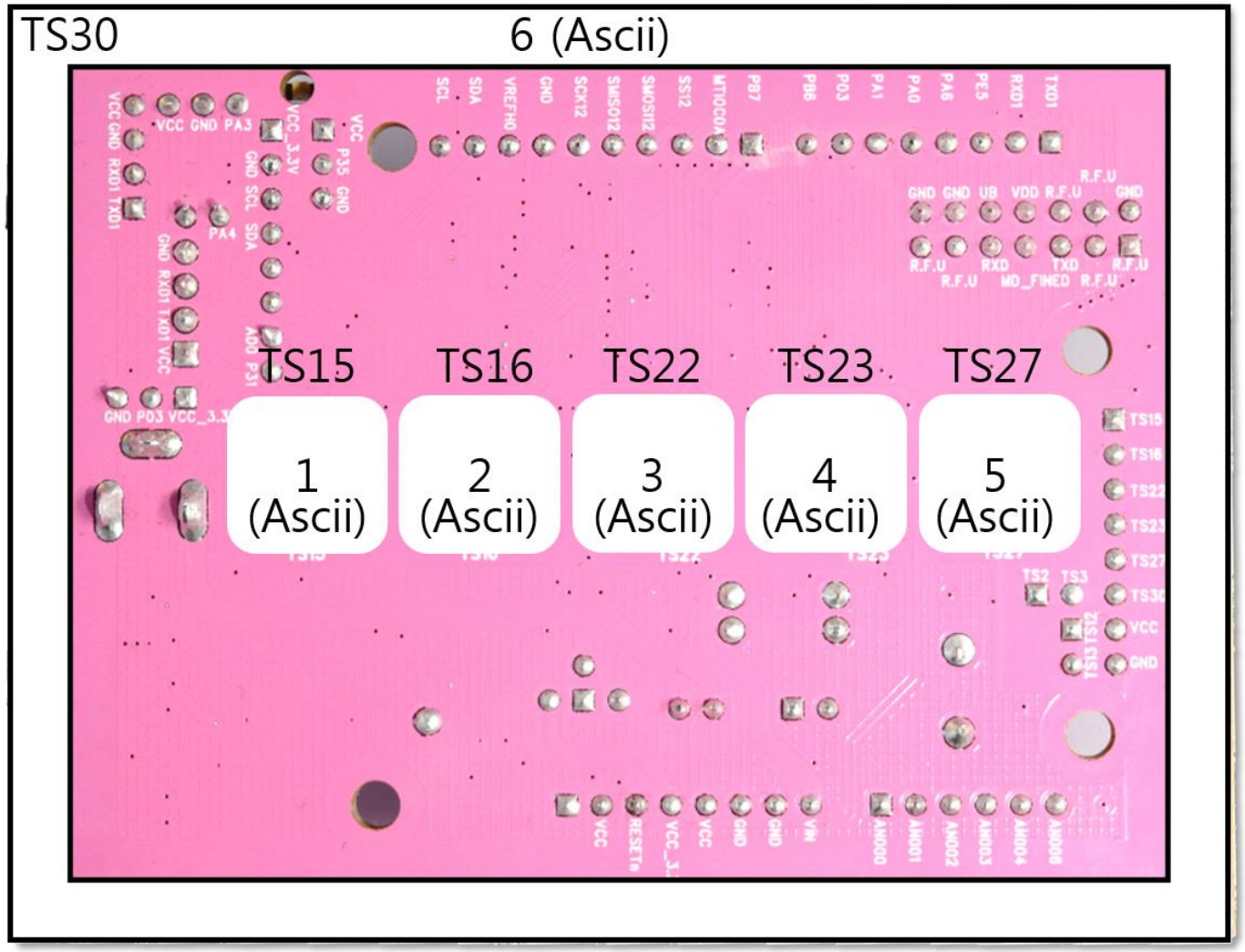
Default mode : When Arduino UNO is not connected, we call it as Default mode

NS-RX231



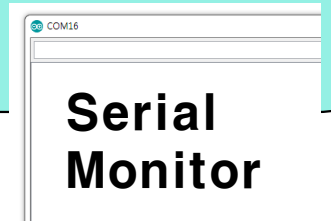
Touch Data

Each Touch Button has a specific value,
and if touch is pressed,
UART will output the specific value.
(9,600bps, N, 8, 1)



Arduino UNO

TouchData



*Connect Arduino and PC using USB Cable

① TouchData ←

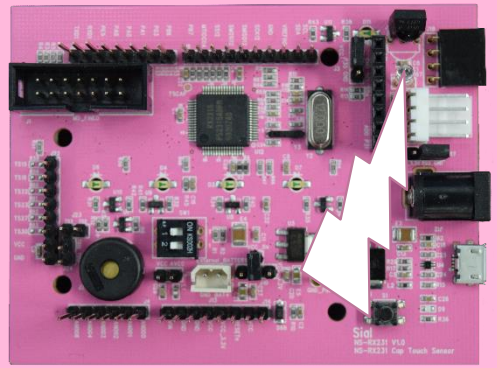
If CapTouch is pressed, NS-RX231 will send TouchData to UNO

② requestIR(Customdata,Data) →

TouchData receive complete, The data corresponding to the touched button is sent to the NS-RX231 using upper function.

③ Successfully request received, NS-RX231 will output signal from IR LED

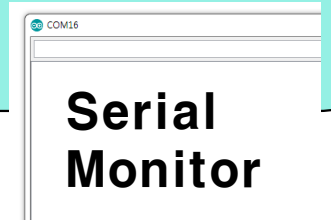
NS-RX231



Num	Custom data	Data
TS16	0	40
TS22	0	24
TS23	0	168

Arduino UNO

TouchData
IR Receiver Data



*Connect Arduino and PC using USB Cable

① NS-RX231 IR Receiver data ←

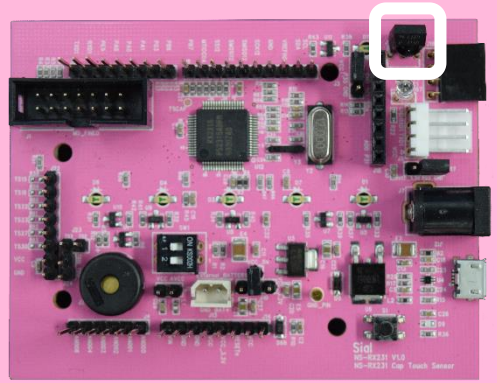
When infrared data is received, NS-RX231 Will IR received Data send to UNO

① TouchData ←

If CapTouch is pressed, NS-RX231 will send TouchData to UNO

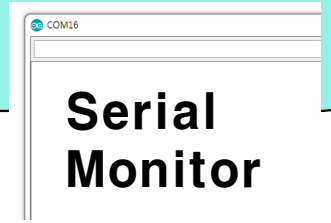
② After receive finished, output received data to Arduino Serial Monitor

NS-RX231



Arduino UNO

TouchData



*Connect Arduino and PC using USB Cable

① TouchData ←

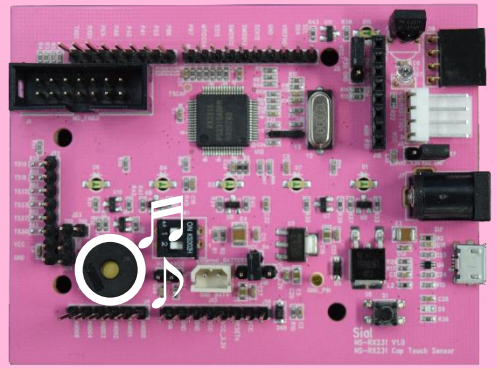
If CapTouch is pressed, NS-RX231 will send TouchData to UNO

② requestSPK(Frq[hz],time[ms]) →

The data corresponding to the touched button is sent to the NS-RX231 using upper function.

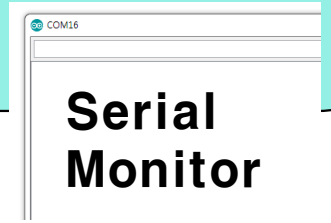
③ After receive finished, output Sound from NS-RX231 Speaker

NS-RX231



Arduino UNO

TouchData
MPU6050 Data



*Connect Arduino and PC using USB Cable

① TouchData ←

If CapTouch is pressed, NS-RX231 will send TouchData to UNO

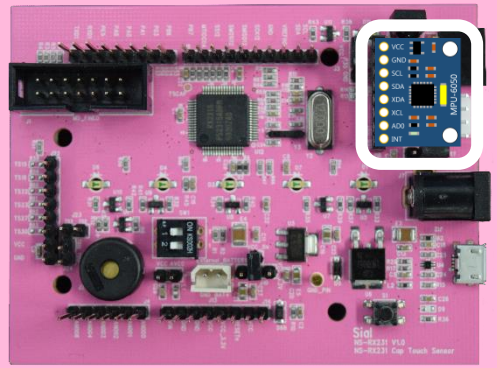
② requestMPU() →

If TS30 is touched, UNO sends mpu6050 data request to NS-RX231 using upper function

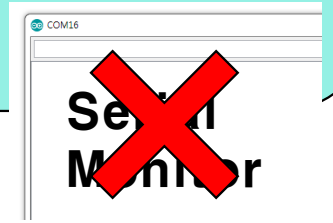
③ MPU6050 Data ←

Successfully request received, NS-RX231 will output MPU6050 Acc & Gyro data
If MPU6050 module does not exist, output will be 255.

NS-RX231



Arduino UNO



prohibited

① TouchData ←

If CapTouch is pressed,
NS-RX231 will send TouchData
to UNO

② requestBLT(data)
TX →

Touched button data
will be sent to NS-RX231
using upper function.

RX Bluetooth Data ←

When Bluetooth data is received,
NS-RX231 will turn on touch LED.
Because RX231 is using UART,
UNO cannot use serial monitor
at the same time

NS-RX231