Group-7

User Manual

Detection that person is dead or alive using accelerometer and sound sensor as sensors and arduino lilypad as microcontroller, Zigbee for the communication between the transmitter and the receiver.
The input obtained from the sensors which can be treated and the output obtained is displayed at the receiver.

Following are the steps for the project :

1. Accelerometer(MPU6050) to Arduino Lilypad
2. Sound Sensor(KY-038) to Lilypad
3. Arduino Lilypad to Zigbee(Transmitter)
4. Zigbee(Receiver) to PC(DIGI XCTU)

NOTE : Do not operate Arduino lilypad above 5.5 V, it can kill it.

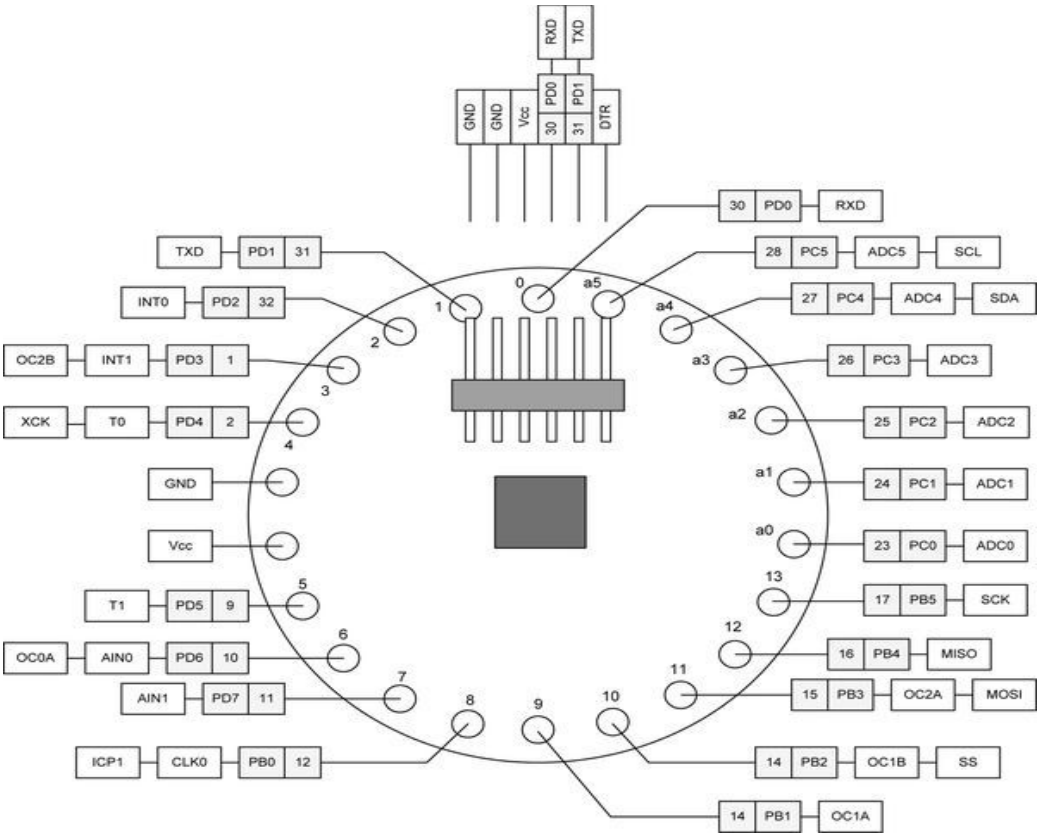
Accelerometer(MPU6050) to Arduino Lilypad

Accelerometer(MPU6050) is used here for finding number of steps of the person walking. Here accelerometer send the raw data to the arduino which is processed to convert it to no of steps.

The connections of the MPU6050 and Arduino lilypad are as follows:

- Connect VCC on the MPU6050 to the 5V pin on the Arduino.
- Connect GND on the MPU6050 to the GND on the Arduino.
- Connect SCL on the MPU6050 to A5 on the Arduino.
- Connect SDA on the MPU6050 to A4 on the Arduino.

Following Diagram can be used for finding corresponding pins in arduino lilypad.

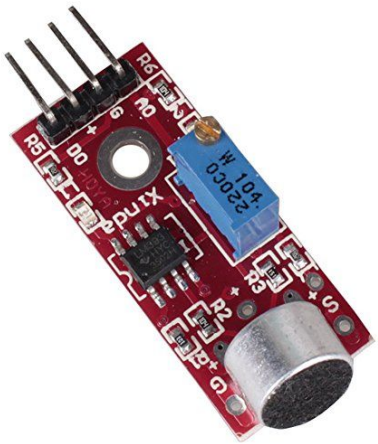


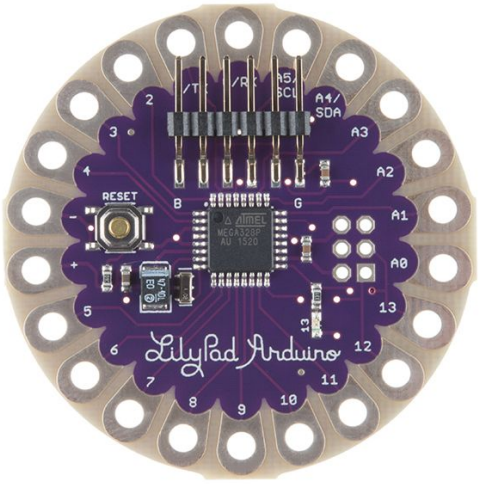
Sound Sensor(KY-038) to Lilypad

Sound Sensor is used to take the analog or digital input for detecting the presence of sound. Here we have used the digital output of sensor as an input for the lilypad.

The connections of the Sound Sensor and Arduino lilypad are as follows:

- Connect VCC on the Sound Sensor to the 5V pin on the Arduino.
- Connect GND on the Sound Sensor to the GND on the Arduino.
- Connect D0 on the Sound Sensor to pin 7 on the Arduino.





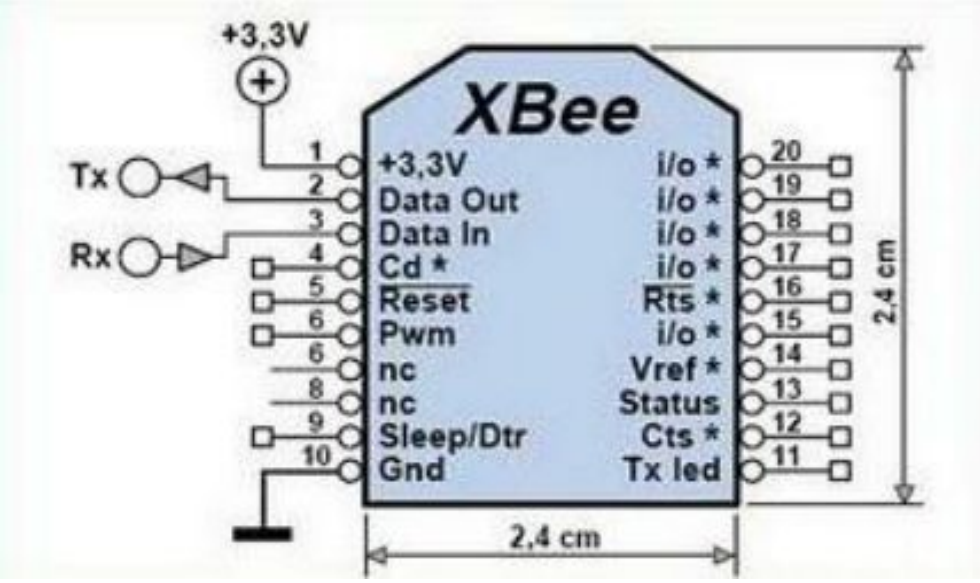
Arduino Lilypad to Zigbee(Transmitter)

Arduino lilypad is connected to the Zigbee module(here working as transmitter)

The connections of the Arduino lilypad and Zigbee module are as follows:

- Connect VCC on the Zigbee module to the 3.3V.
- Connect GND on the Zigbee module to the GND.
- Connect TX on the Zigbee module to RX on the Arduino Lilypad.
- Connect RX on the Zigbee module to TX on the Arduino Lilypad.

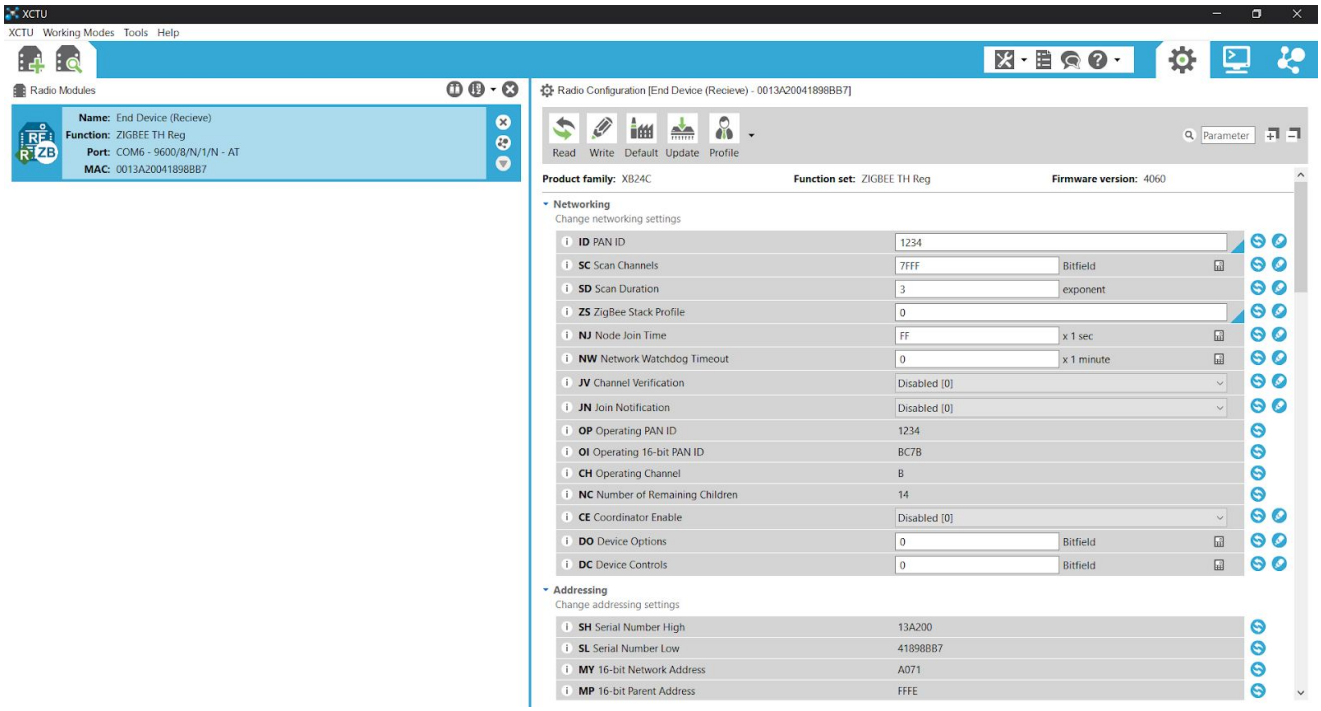
Following Diagram can be used for finding corresponding pins in Zigbee module.



Zigbee(Receiver) to PC(DIGI XCTU)

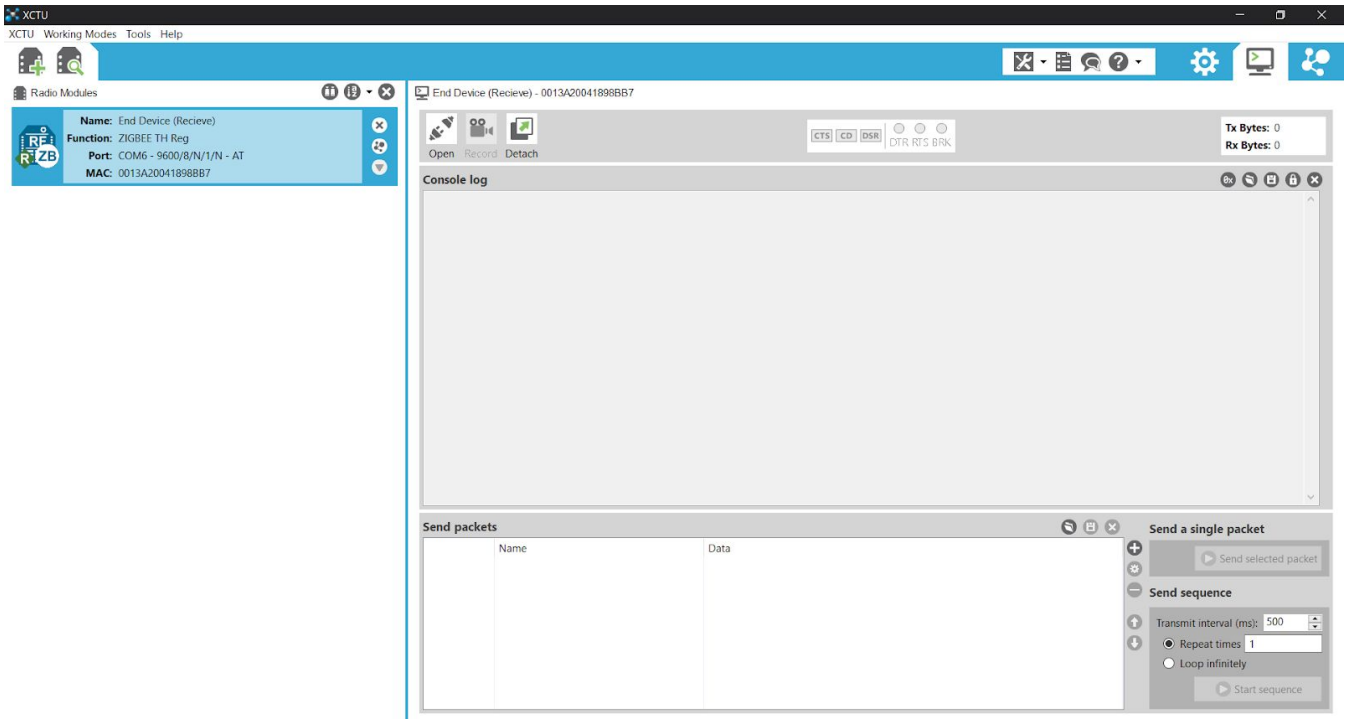
Zigbee module (used as receiver) collects the data from the Zigbee module (used as transmitter).

So, when working on this part of the system the very first thing to be done is to configure both the Zigbee modules (i.e. transmitting and receiving). For this, we connect each of the Zigbee modules to the PC and through the XCTU window shown below we give the same PAN ID and each others MAC Address to them, which helps them to identify each other and transmit and receive data among themselves.

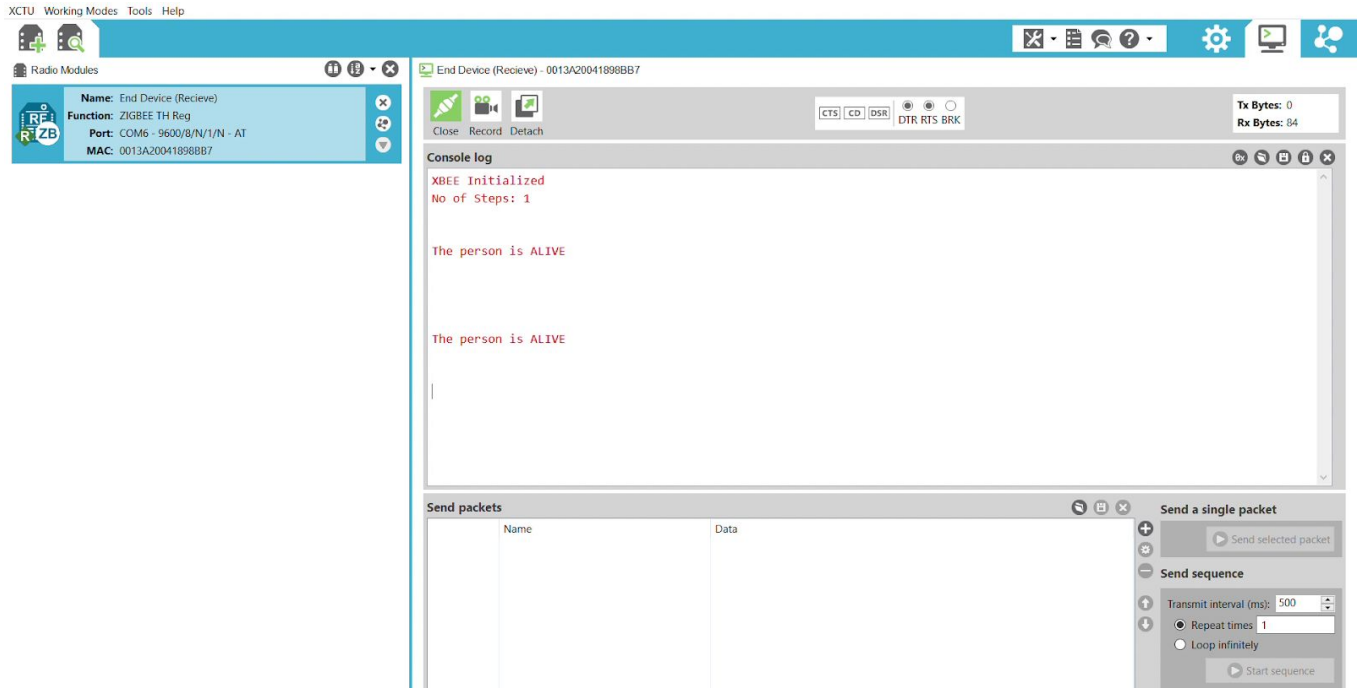


After configuration of both the Zigbee modules we now connect the transmitter Zigbee module to our project circuit and the receiving ZIgbee module to our PC.

On connection of the receiver Zigbee module to the PC we would be doing the set up for the first time, after which every time we connect the Zigbee module to the PC, the down shown Console window comes into view.



Here, we can see that the connection between the transmitting Zigbee module and the receiving Zigbee module is open, which can be clearly seen by the Open button above the Console log window. This we need to click, such that the transmitting and receiving circuit gets closed and we start receiving the data from the transmitting end as shown in the image below.



In this way we successfully communicate between the PC and the project circuit.