

Module 3.2

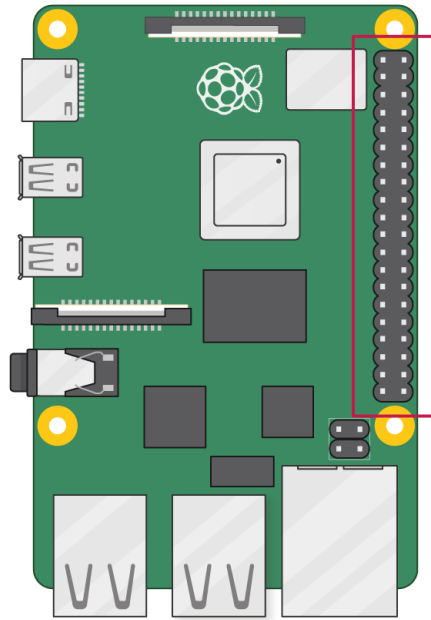
Zymkey Sensor Encryption

Compu**Things** ***Technology**;

Module Target

- Integrate Rpi GPIO with dht11 sensor and buzzer
- Encrypt sensor data with zymkey python API
- Decrypt back to get the original data

Rpi 4 Model B GPIO PinOut



3V3 power	1	2	5V power
GPIO 2 (SDA)	3	4	5V power
GPIO 3 (SCL)	5	6	Ground
GPIO 4 (GPCLK0)	7	8	GPIO 14 (TXD)
Ground	9	10	GPIO 15 (RXD)
GPIO 17	11	12	GPIO 18 (PCM_CLK)
GPIO 27	13	14	Ground
GPIO 22	15	16	GPIO 23
3V3 power	17	18	GPIO 24
GPIO 10 (MOSI)	19	20	Ground
GPIO 9 (MISO)	21	22	GPIO 25
GPIO 11 (SCLK)	23	24	GPIO 8 (CE0)
Ground	25	26	GPIO 7 (CE1)
GPIO 0 (ID_SD)	27	28	GPIO 1 (ID_SC)
GPIO 5	29	30	Ground
GPIO 6	31	32	GPIO 12 (PWM0)
GPIO 13 (PWM1)	33	34	Ground
GPIO 19 (PCM_FS)	35	36	GPIO 16
GPIO 26	37	38	GPIO 20 (PCM_DIN)
Ground	39	40	GPIO 21 (PCM_DOUT)

DHT11 – Humidity and Temperature Sensor

- VCC connect to any 3.3 vcc pin
- Data connect to any data pin
- GND connect to any data pin



Buzzer



- + pin (longer leg) connect to any GPIO
- Shorter leg connect to ground

Instruction

- Wire up connection between Rpi and DHT and buzzer
- Use dht11 tutorial in following link
 - <https://www.raspberrypi-spy.co.uk/2017/09/dht11-temperature-and-humidity-sensor-raspberry-pi/>
- Use buzzer tutorial in following link
 - <https://www.instructables.com/id/Raspberry-Pi-Tutorial-How-to-Use-a-Buzzer/>

Integration

- Encrypt dht sensor data using zymkey lock() function
- Decrypt back dht sensor data using zymkey unlock() function
- The buzzer need to beep when input sensor data is ready.

Conclusion

This exercise integrate basic sensor reading application and integration with basic zymkey operation.