**MAX30100**

* The sensor is integrated pulse oximetry and heart-rate monitor sensor solution. It combines two LED’s, a photodetector, optimized optics, and low-noise analog signal processing to detect pulse and heart-rate signals. It operates from 1.8V and 3.3V power supplies and can be powered down through software with negligible standby current, permitting the power supply to remain connected at all times.
* Features of MAX30100 Pulse Oximeter

1. **Consumes very low power (operates from 1.8V and 3.3V)**

2. Ultra-Low Shutdown Current (0.7µA, typ)

3. Fast Data Output Capability

* Working of MAX30100 Pulse Oximeter and Heart-Rate Sensor

1. The device has two LEDs, one emitting red light, another emitting infrared light. For pulse rate, only the infrared light is needed. Both the red light and infrared light is used to measure oxygen levels in the blood.
2. When the heart pumps blood, there is an increase in oxygenated blood as a result of having more blood. As the heart relaxes, the volume of oxygenated blood also decreases. By knowing the time between the increase and decrease of oxygenated blood, the pulse rate is determined.
3. It turns out, oxygenated blood absorbs more infrared light and passes more red light while deoxygenated blood absorbs red light and passes more infrared light. This is the main function of the MAX30100: **it reads the absorption levels for both light sources and stored them in a buffer that can be read via I2C.**

**MLX90614**

* The MLX90614 is a non-contact infrared thermometer with a measurement range **from -70 to +380 degree Celsius**. It is an accurate thermometer with a resolution of 0.01 and a accuracy of 0.5 degrees, or for that matter you can use any microcontroller that can **communicate with it through its I2C interface.**
* Features of MLX9061

1. Measurement resolution of 0.02 ° C
2. **High accuracy of 0.5 ° C over wide temperature range (0 … + 50 ° C for both Ta and To)**
3. Small size, low cost
4. Customizable PWM output for continuous reading

**Circuit with ESP32-**

**(Since, the addresses will be different for both sensors, they can be connected to the same SDA and SCL pins)**

