Ventilator for COVID19 Emergency

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Project Aim

Using RaspberryPi to build a ventilator

Project description:

- Even though not as efficient as regular ones,this ventilator can be used in emergency cases
- It will also be capable of monitoring our health and provide data about our heartbeat and SPO2 levels.

Hardware Used:

- RaspberryPi board
- BVM Bag
- Test Lung
- MAX30100
- Servo motors
- OLED display

Approach

1. This ventilator prototype uses a servo motor that applies pressure on an air sack (BVM bag), thus pushing oxygen-concentrated air into the lungs.
2. When the servo motor comes back to its earlier position, it results in pressure being released from the air sack (BVM bag), making it retain its original shape.
3. This helps to draw out CO2 from the lungs (similar to the process of breathing in and out).
4. The entire ventilator mechanism of respiration should be in sync with a patient's normal respiratory rate. This can be achieved by changing the speed of the servo motor in the program.

5. MAX30100 sensor also can be used that gives us live data about the rise and fall of pulse rate and oxygen level in the blood of a patient.
6. By implementing Raspberry Pi and any standard LCD display, we can observe the pulse rate and blood oxygen percentage as a graph on the display screen.

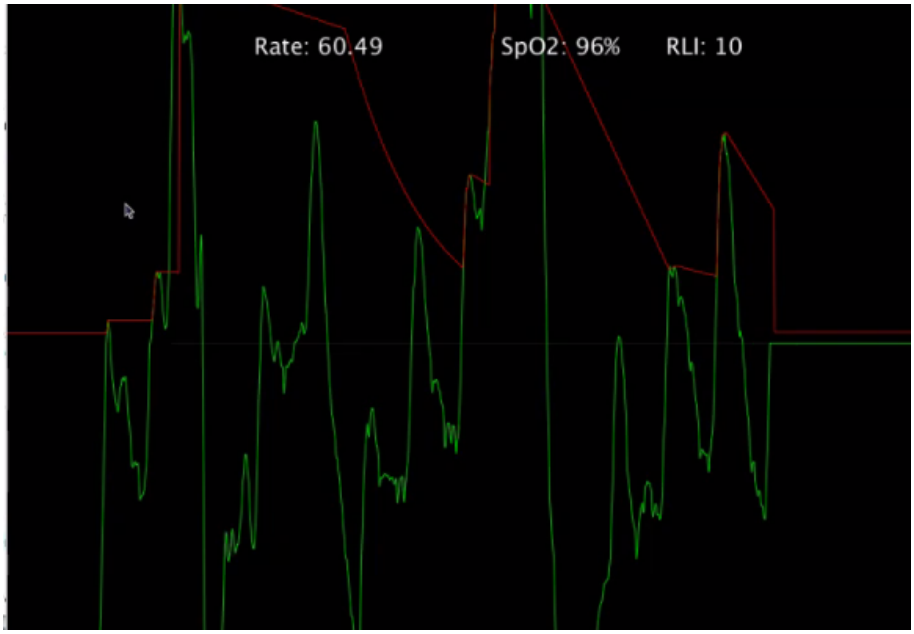

Figure 1: Example of graph that can be plotted