WELCOME EVERYONE

ULTIMATE COVID-19 SOLUTION

Presented by :- Arijit Das
Designation :- Student of 9th Standard
School :- Hem Sheela Model School
Email :- arijitdas18022006@gmail.com

Introduction :-

- COVID-19 is spreading extremely fast in the whole world. There are total of 211 countries been affected by the deadly virus (as per www.worldometers.info).
- Thus during this extreme scenario its of a immense need to control the cases worldwide. There has been many different protocols being used up by the government to do so of which extreme lockdowns and maintaining social distancing is of utmost importance.
- Therefore due to these certain protocols being practised out by the government the increase rate of Coronavirus cases worldwide is being lowered down than it was earlier.

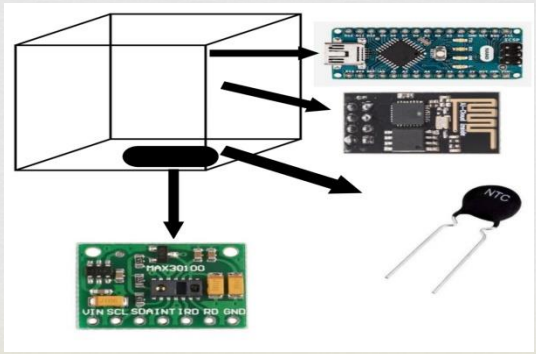
What is the need of my project :-

- Due to contamination of the virus many doctors are being affected. As of 9th April more than 100 Italian Doctors have died because of contamination from Coronavirus.
- Thus making smart devices using our extreme developed technology is essential.

Moreover it will be a boon for healthcare workers and doctors working round the clock for curing this virus. Our whole world is thankful to these superheroes and now its our turn to protect them for saving ourselves.

What my project actually is :-

- My project consists of a Health Band along with an app named CoronaSecure. It is made up of a small Arduino Nano , ESP8266 Wi-Fi module , MAX30100 Pulse Oximeter sensor and a 10k NTC Thermistor.
- I have also developed an App using MIT App Inventor 2 and a smart assistant using IFTTT.
- The entire device is so reduced to size that it can easily fit as a watch on our hands.



How does my project work :-

- We will put the device on a person's hand and the Arduino Nano will take up data from **MAX 30100 sensor** and the **Thermistor**. The device needs to be attached to the body by using a wrist strap i.e. a Velcro . Then the thermistor needs to be placed below our arm and the MAX 30100 sensor will be placed under the device as because the device will have some weight and that pressure will be applied on the sensor thus the sensor will receive the data more precisely.

How does my project work :-

- Our device is based on *Wi-Fi technology* i.e. all the amount of data received by the Arduino will be transferred to our **CoronaSecure** App using the ESP-01 Wi-Fi Module. The app will survey the person for two weeks [Normal Quarantine Period] and if any possible chances of the person being affected then it will be informed to the local Police and Hospital services by using *GPS* system present in our phones. I have also added VoIP Call Feature using IFTTT to the registered mobile number. Everyday after a certain time IFTTT assistant will call to the registered mobile number requesting the patient to fill up the survey from regularly.

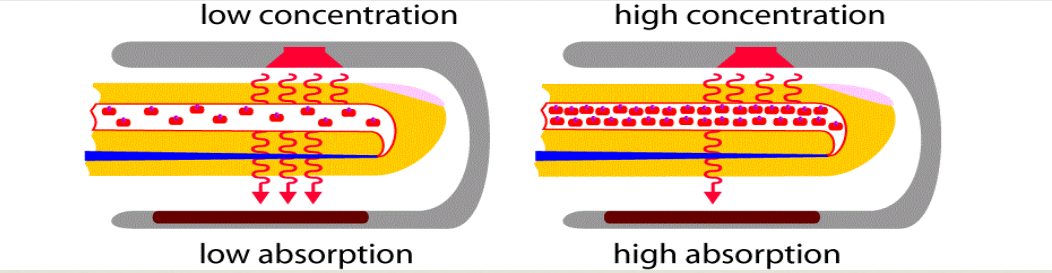
How does my project work :-

- Lets consider a chain here :-

1. **Taking data from MAX30100 Sensor and NTC Thermistor.**
2. **Data being sent to the Arduino Nano for retrieving.**
3. **The device is getting connected to our Mobile using ESP-01.**
4. **After successful connection the patient fills up a survey form.**
5. **Then this entire data is being uploaded to the cloud .**
6. **If any chances of COVID-19 occurs then this data is being sent to the local doctors along with GPS location.**

How does my project work :-

- **MAX30100 SENSOR :** The MAX30100 is an integrated pulse oximetry and heart-rate monitor sensor solution. It combines two LED's, a photo-detector, optimized optics, and low-noise analog signal processing to detect pulse oximetry and heart-rate signals.
The MAX30100 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. Oxygen enters the lungs and then is passed on into blood. The blood carries oxygen to the various organs in our body. The main way oxygen is carried in our blood is by means of hemoglobin. During a pulse oximetry reading, a small clamp-like device is placed on a finger, earlobe, or toe. Small beams of light pass through the blood in the finger, measuring the amount of oxygen. It does this by measuring changes in light absorption in oxygenated or deoxygenated blood.



How does my project work :-

- **NTC THERMISTOR :** NTC Thermistors are temperature-sensing elements made of semiconductor material that has been sintered in order to display large changes in resistance in proportion to small changes in temperature.

  This resistance can be measured by using a small and measured direct current, or dc, passed through the thermistor in order to measure the voltage drop produced.

Why should we use this device ?

- No contact or any risk of contamination with the healthcare workers or even the doctors with the infected patients.
- Patients can be treated from their home only thus no need of going to the hospitals for frequent check-ups.
- Continuous surveillance of patients leads to proper distinguishing of the contamination and they can be treated easily.
- Extremely cheap device under $10 thus it can be used by people of any economic level.

Question – Answer session

Thank you for listening to my presentation

Presented by : Arijit Das

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