Covid Digital Doctor

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I propose a device that can be sent home with a patient that can monitor the heart rate and blood oxygen saturation as this is the main indicator for the need of ventilation. The devices sensor data will be available to the patients' doctor via the 'Covid Digital Doctor' web application. The web application can keep both the patient and the doctor in contact by storing patient contact information and will allow the doctor to quickly send emails notifying the patient of the need to return to the hospital.

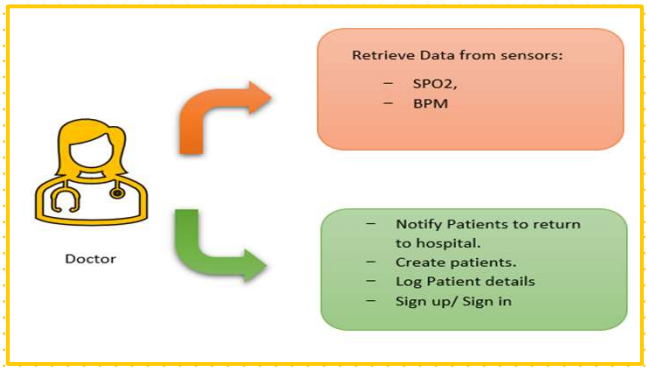
Introduction:

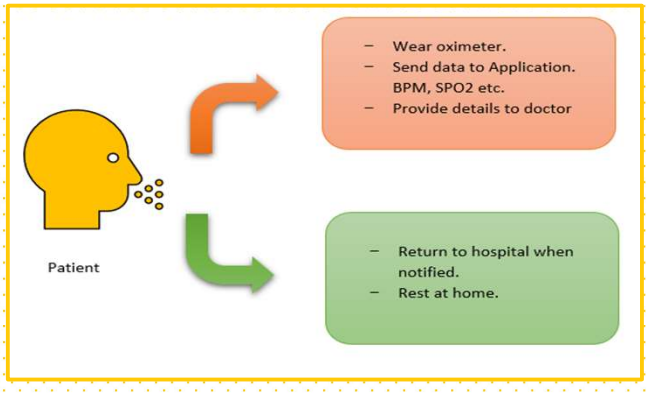
The Covid – 19 pandemic is causing major disruptions all over the world. One of the major fears during this time is that our healthcare systems will be overwhelmed by the numbers of people requiring care. This is of great concern as there is only a finite number of ICU beds. Preserving the number of ICU beds available for people that really need them is the aim of my project. After consulting a healthcare professional working in a local hospital, she highlighted to me what she thought was a flaw in the way in which Covid- positive patients were processed in the hospital.

She offered me an example:

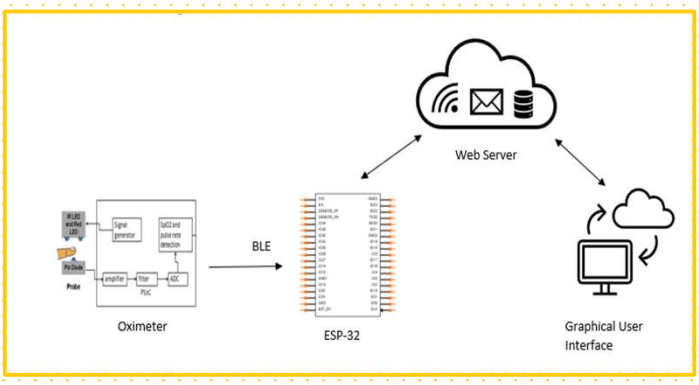
A man walks into A&E and he tests positive for Covid-19. The man is middle-aged. The staff in the hospital are left with a dilemma. Do they let the man go home to self-isolate or do they admit him to a hospital bed? The problem is the man may appear healthy enough to go home (not requiring ventilation), but he may deteriorate at home. This leads to most cases as such being kept in hospital and the patient is often occupying a bed they do not need.

Application Scenarios:

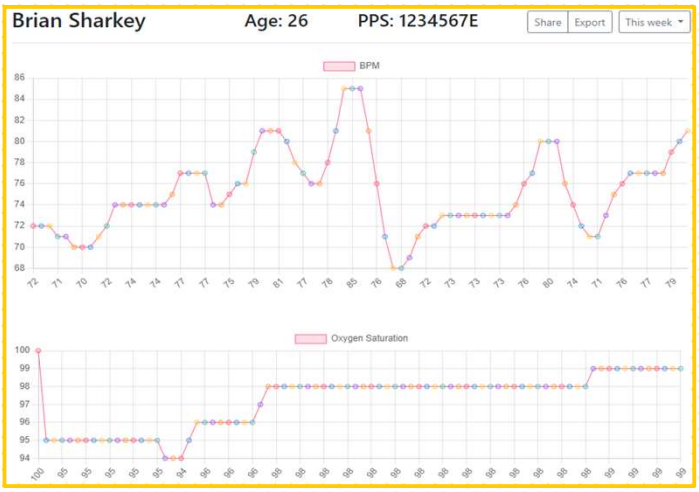




Architecture Diagram:



Result Example:



The picture above is an example of the main feature of the application. The application is displaying heart rate and blood oxygen saturation levels of patient 'Brian Sharkey'.

Technologies:

- Node.js
- AWS Hosting Services.
- AWS IoT Core.
- ESP32
- Oximeter.
- Low-Energy Bluetooth.
- C Programming Language.
- JavaScript.
- HTML.
- MongoDB