SLIDE 1

1. InspireXCoders

2. Leader - Hariket Sukesh Kumar Sheth
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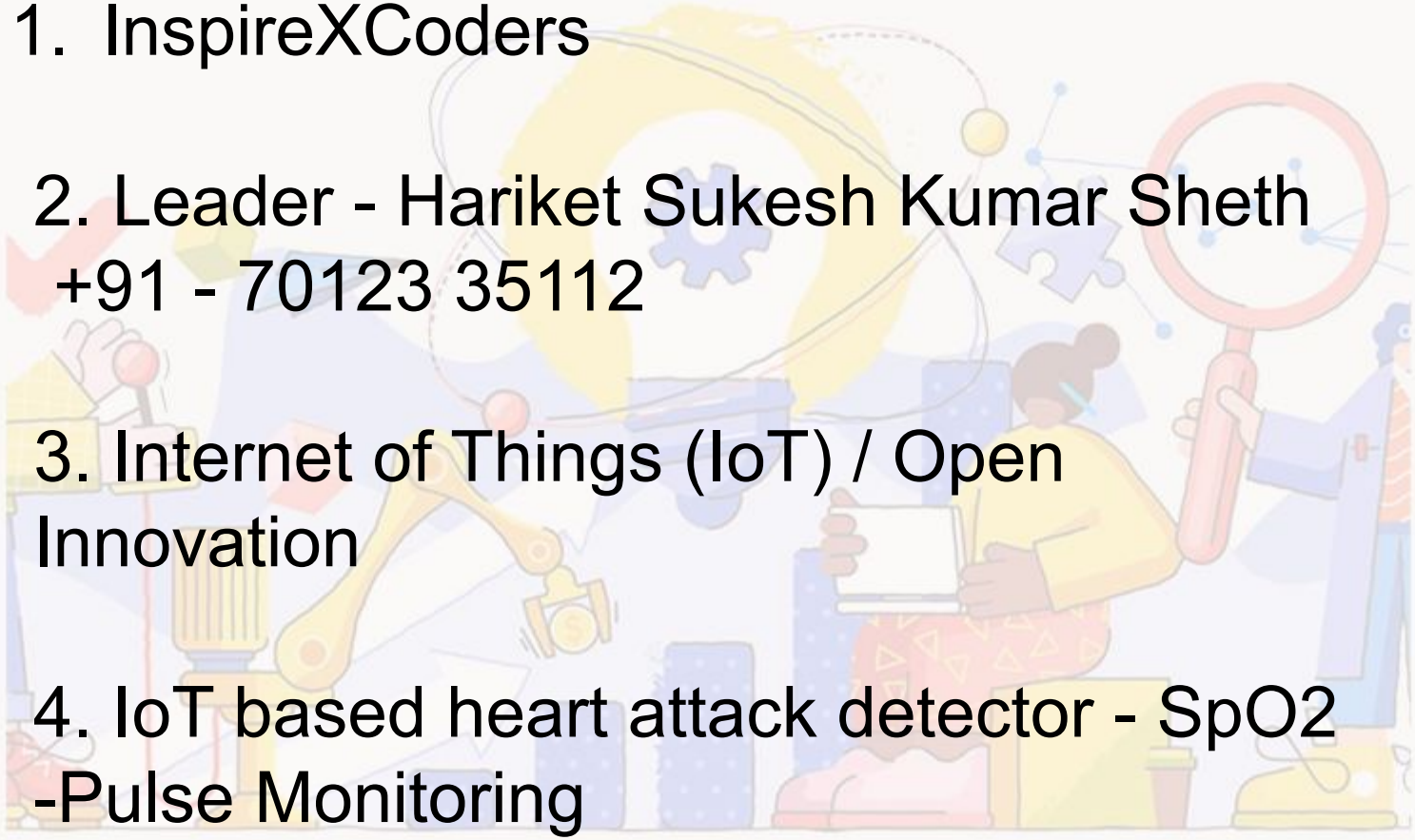
3. Internet of Things (IoT) / Open Innovation

4. IoT based heart attack detector - SpO2 -Pulse Monitoring



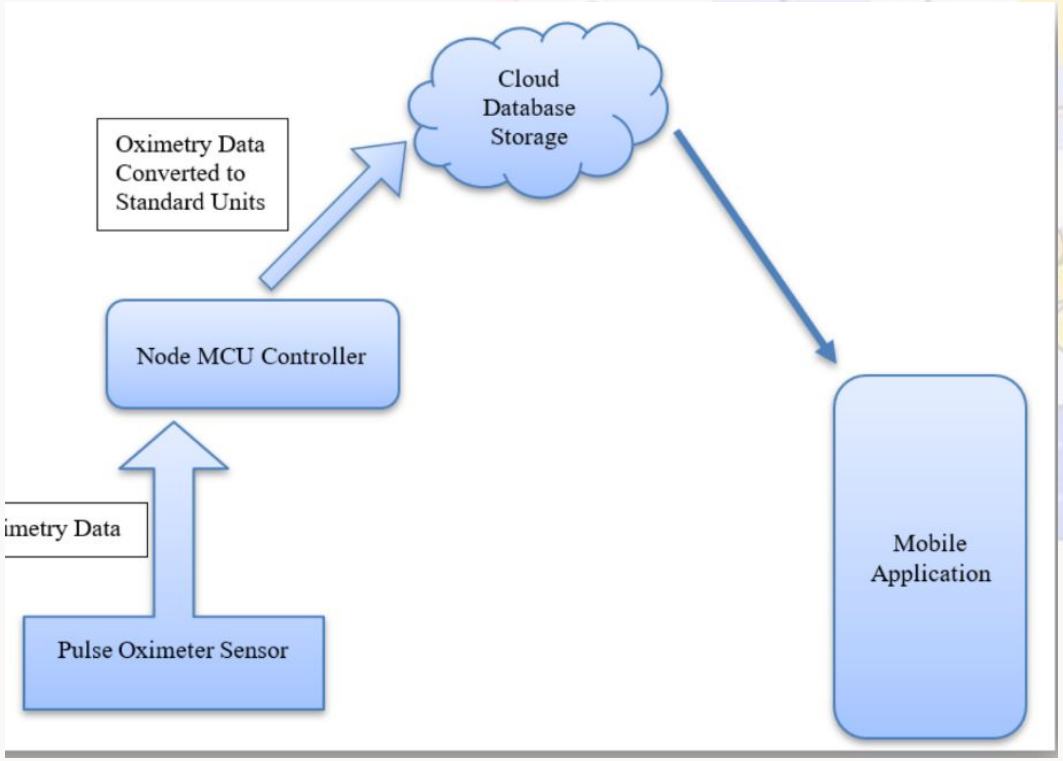
ABSTRACT

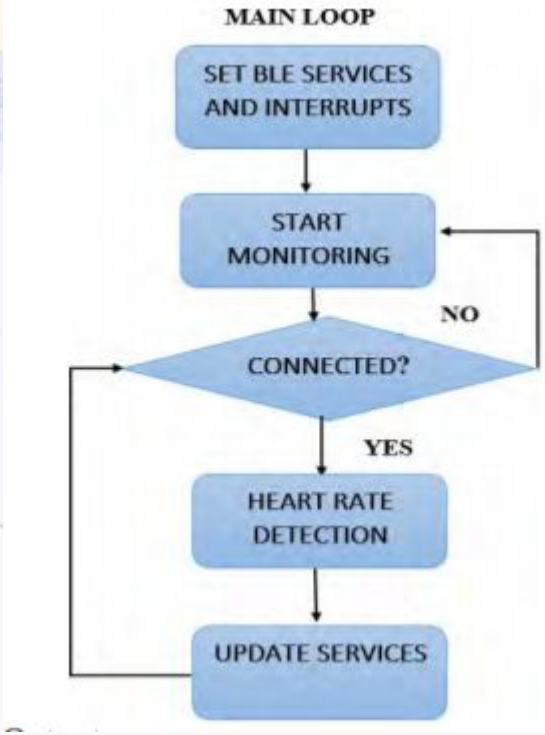
The proposed system sense bed vibrations using **Geophone**, which helps in **monitoring person's heart rate** during sleep. This geophones are placed at the side of the bed, which allows person to sleep in a comfort manner.
Geophones are integrated with Arduino, which connected to the ac amplifier. The vibrations are converted to analog signal which is to be displayed on to the monitoring screen. But since Geophones are responsible only for detecting the vibration when the person is in bed, **wristband is used**. Wristband helps in **detection of the heart rate** and it is also used for **early detection of heart attack** using machine learning algorithms. Pulse detection sensor is used to detect pulse rate. Geophones and Wristband techniques will wirelessly send alert to **5 recommended people**.

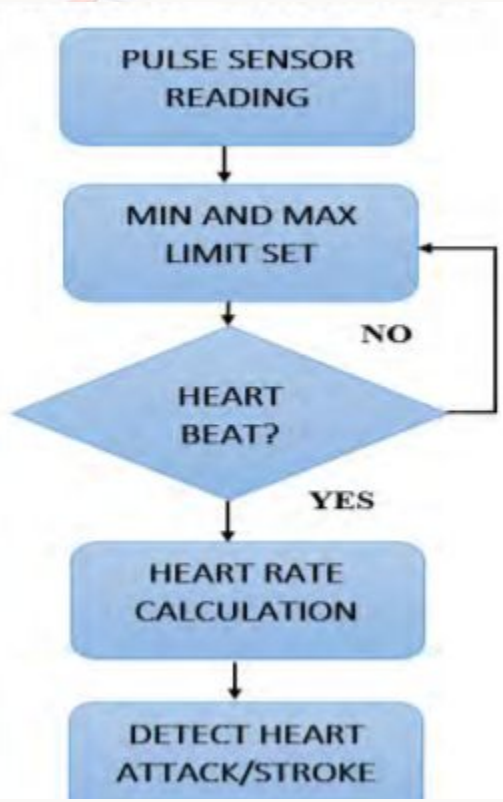
We will also be integrating **MAX30102 sensor** that would read the **blood oxygen level** and would help in **monitoring the Pulse rate of the person**. If the SpO2 count goes down a certain level, then an automated notification is sent to the doctor. Also, it would indicate whether the person is in need of oxygen cylinder. This technology can be really helpful for the **people in remote areas.**

SLIDE 3

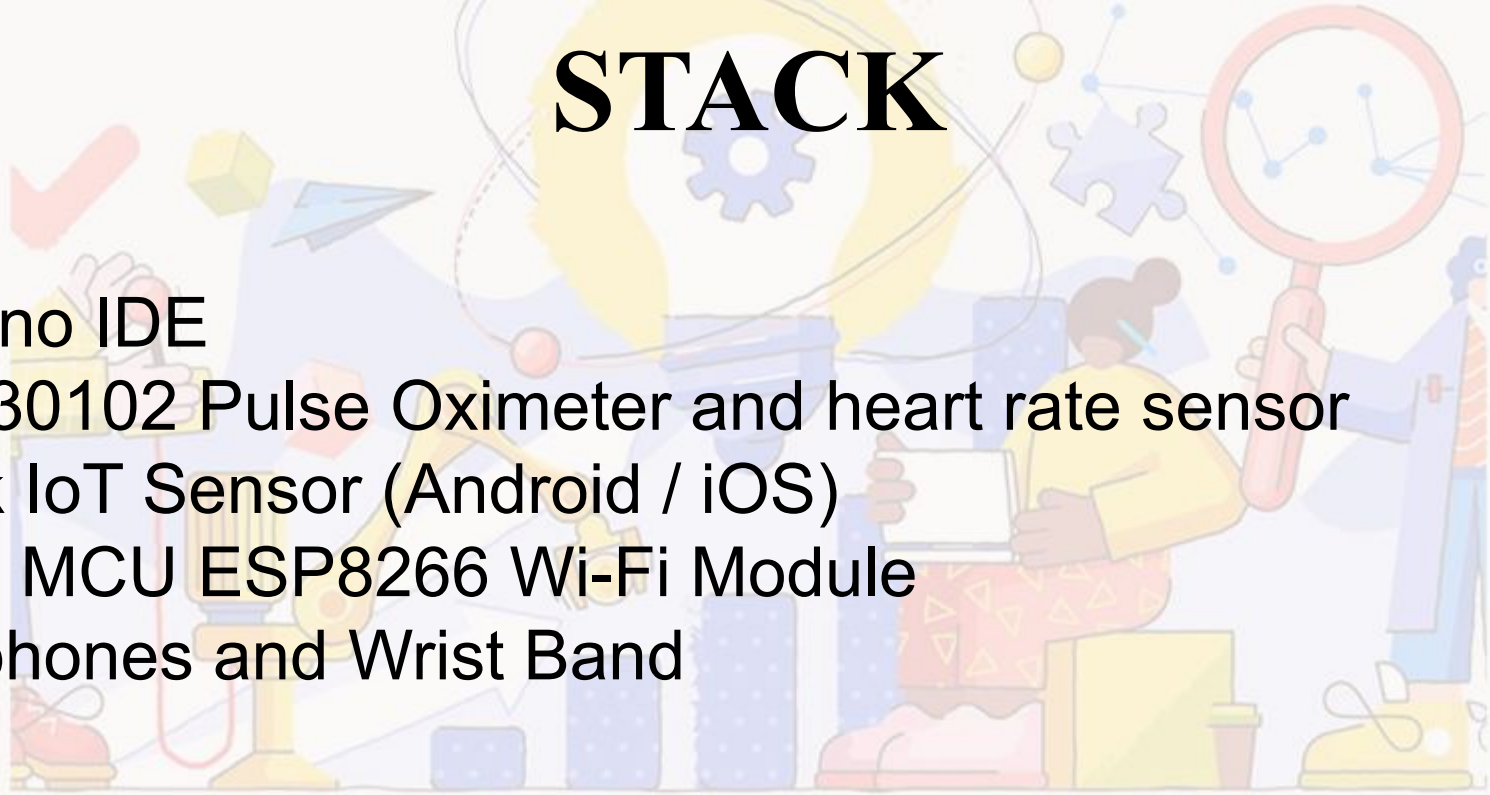
NOVELTY







TECHNOLOGY STACK



1. Arduino IDE
2. MAX30102 Pulse Oximeter and heart rate sensor
3. Blynk IoT Sensor (Android / iOS)
4. Node MCU ESP8266 Wi-Fi Module
5. Geophones and Wrist Band

SOFTWARE IMPLEMENTATION

Download the “Blynk –IoT for Arduino, ESP8266/32, Raspberry Pi” from Google Play store and sign in with google account.

• Click on “New Project”.

• Name the Project, select device as “NodeMCU” and connection type as “Wi-Fi”. Then press Create.

• Click on the “” sign on the top right corner to add the components to the Project. • Add 1 LCD, 2 Value Display, 2 Gauge and 1 Notification. Individual components can be clicked upon to open component settings.

• For the LCD, select virtual pin V5.

For the First value display o Keep the title “BPM” and range from 0 to 220. o Select virtual pin V1 and change reading rate to “push”.

For the Second value display o Keep the title “SpO2” and range from 0 to 100. o Select virtual pin V2 and change reading rate to “push”.

• For the First Gauge o Keep the title “BPM” and range from 0 to 220. o Select virtual pin V1 and change reading rate to “push”. 12

• For the Second Gauge o Keep the title “SpO2” and range from 0 to 100. o Select virtual pin V2 and change reading rate to “push”.

• Now click on the “Settings” icon beside the Project Title to open the Project settings.

• Click on “Email All” to receive all the Auth tokens.

• Also, multiple devices can be connected by clicking on “Devices” in the same menu and adding a new Device

HARDWARE IMPLEMENTATION

Hardware (interfacing max30102 with node mcu esp8266):

• The NodeMCU is fitted in the bread board. • It is then connected with the USB Cable to the Computer system to feed the code into the module.

The SCL pin of the sensor is connected to the D1 pin slot of Node MCU.

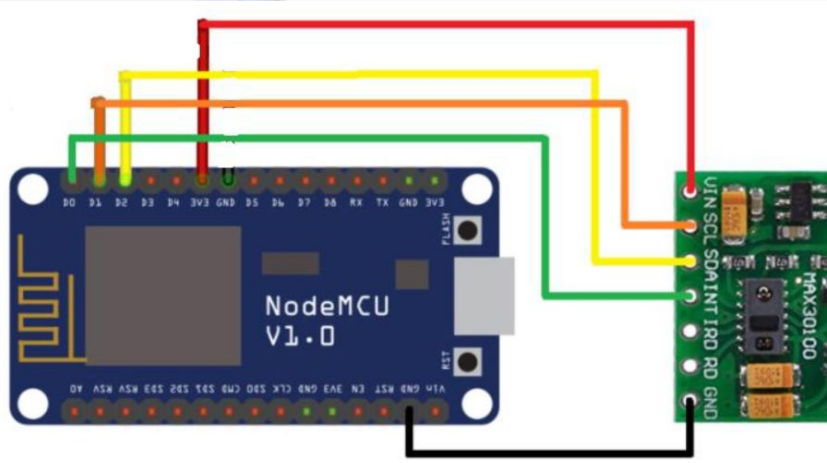
• The SDApin of the sensor is connected to the D2 pin slot of Node MCU.

• The INT pin of the sensor is connected to the D0 pin slot of Node MCU.

• The GND pin of the sensor is connected to the GND pin slot of Node MCU.

• The VIN pin of the sensor is connected to the 3.3V input slot of Node MCU.

• After setting up the hardware, we can proceed to set up the App



BUSINESS SCOPE

This project components have been successfully tested and it suggests a better way to monitor patients who have contagious diseases. This approach can be very helpful in such situations. Also, this system enables the people to monitor their elderly parents or relatives having certain health conditions remotely from anywhere across the world. The Blynk IoT App is currently being used to test the running of the app. An app customized for this particular use can be developed. The hardware components of the project can be customized into a wearable device so the one may not have to keep adjusting the finger upon the sensor. Also, a small touchscreen can be set up with the wearable device so as to customize and view the data locally.

Thank You !