COVID -19 PATIENTS MONITORING WITH ANTI C-19 BAND

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ABSTRACT:

COVID-19 (Novel Coronavirus) is now became the Worldwide threat now , also World Health Organisation (WHO) has expressed concern about this pandemic and said that there is a need to control it at the high end. To overcome this challenge we have proposed a model which will not only break the chain of COVID-19 but also help to save life . In this model an Anti C-19 band will be provided to paitents which will be used for real time monitoring by surveillance departments , also doctors will able to monitor heath report of paitents without coming in direct contact with them ,as the band is directly connected to server through which all data can be acceseed.. This band is connected to mobile application which is also connected to same server,and this mobile app allows the Non-Infected persons to get a proper notification or alarm if even by mistake they come in an area where there is a infected persons and this tracking is on real time data so there is maximum chances that the possibility of coming in contact is minimum.

KEYWORDS: COVID-19 , WHO , ANTI C-19 .

CHALLENGE:

COVID-19 is spreading rapidly at an unprecedented scale across continents and has emerged as the single biggest risk the world has faced in modern times. Only science and technology in the hands of capable scientists and innovators can come to our rescue in developing innovative but effective solutions as we prepare for a future, which in the very short term looks increasingly uncertain.

To overcome this epidemic proposed concept is to launch the Anti C-19 band which is to be provided to those persons who have been tested positive and also to them who are home quarantine for their continuous monitoring so that they donot get in contact with other non-infected persons

This band also serves other functions such as

1 GPS tracking of Quarantine patients

2 Health monitoring ie: Body Temperature, heart rate etc

3 Security/ Surveillance: If any suspicious activity is detected such as if band is removed from hand then after certain interval of time an alarm would start ringing in cell phone connected with band and a notification would be send to nearest police station

4 With this band all data can be stored as a cloud and can be accessed from the server from anywhere

What are the technology possibilities to solve this challenge?

In this Epidemic Situation of COVID-19 the virus has affected major population in the third stage but if this problem could be detected with the present technologies at early stage the situation can be controlled. With recent innovation in converging technologies such as mobile computing, mobile communications and broadband internet, it has been possible to trial a number of innovative approaches to epidemic response. Although technology has been used to assist in the fight against epidemics in the past, the recent Ebola outbreak has led to a step change in the level of focus from the technology sector. The major part of technologies can be used in epidemic situation is:

1 Messaging - During an outbreak, clear messaging to the local population is vital to ensure they are informed and reminded to use appropriate precautions, getting clear information to the point most required.

2 Connectivity -During an epidemic, communication is a critical tool to ensure we can both spot the virus spreading early and make attempts to contain it by educating the local population. From an NGO perspective, it also provides a means of maintaining medical services through the use of telemedicine. In the recent outbreak, a number of facilities were effectively shut down as staff were evacuated, creating a secondary and potentially more damaging issue, as

basic healthcare was no longer available. Traditional means of providing bandwidth to remote areas using satellite technology are being augmented by Wi-Fi and 3G or 2.5G technologies.

3 GPS tracking / Real Time Monitoring - Several innovative solutions such as Epi-info VHF and EVD Net have been trialled to assist in the monitoring of any new virus outbreak. This is an area that has seen real innovation in using the available mobile capabilities in the region. The viability of these approaches will only grow with the increase in mobile penetration. Innovations that are being trialled include examining data from mobile phone towers to track users who have been close to a known case of the virus. Other initiatives are being trialled that allow staff to electronically enter patients' details as they are received at a medical facility, thus helping to provide a clear picture of the outbreak itself. These technologies leverage the communication capabilities others are trialling to allow clinics to be linked together and tracked

centrally. Data from these tools are now being analysed.

4 Data Visualization: Data visualization help analysts gain a more complete understanding of the data and gain insights that are more commercially valuable.

Data visualization is how the data gets displayed after data analysis, including chart design, dynamic combination, two-dimensional charts, three-dimensional charts, linkage, drilling, large-screen display, etc.

The functions of data visualization are mainly reflected in two aspects: one is data display, and the other is analysis. The data display is well understood. It is to display the known data or data analysis results through visual charts. In this covid-19 challenge the data collected from the Anti C-19 band which is stored in the server can be analysed with the help of data visualization

Various data such as temperature of patients, heart rate, no of active Covid -19 cases, and state wise analysis of India .


园区HSE
应急水池液位
热电烟囱SO₂
热电烟囱NOx
热电烟囱烟尘
700m3应急池液位
罐区污水池液位
铵盐酸塔 PH
水剂酸吸收塔 PH
20
工作票
717
隐患数
隐患上报情况统计
隐患整改率
隐患类别
隐患状态
作业票类型
作业票完成情况
实时隐患信息


销售管理中心驾驶舱
100%
合同金额
2.78亿
80.94%
回款金额
2.25亿
年度签单&回款统计
季度签单堆积面积图
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5400-7200
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1800-3600
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一万以下
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五十万到一百万
一百万以上
销售回款前十名
销售回款后十名
aaron
gavin
grace
allen
jack
alvin
michael
bruce
省份
客户经理
客户名称
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目标进度
发达国家
发展中国家
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历年收入
订单金额
平台占比
企业排名
排名 名称 类型 地区
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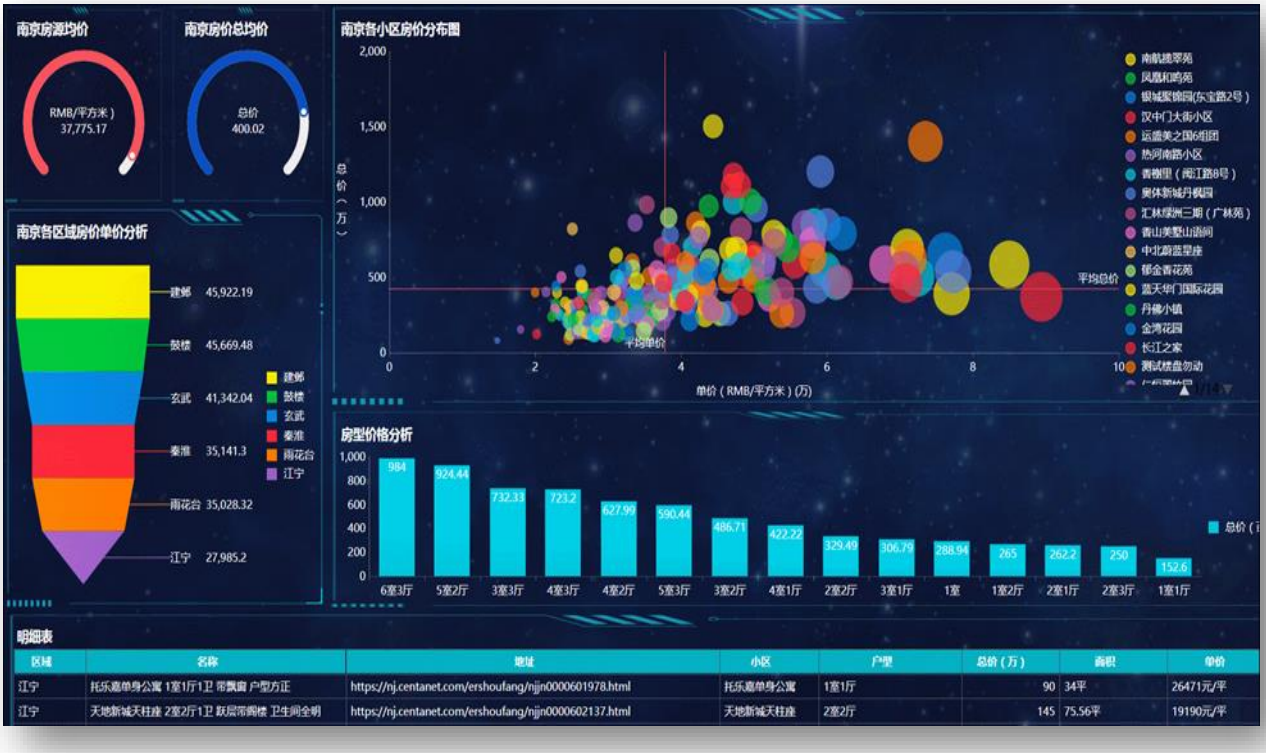
第二名 恒力集团 纺织 苏州
第三名 江苏沙钢 冶金 苏州
第四名 苏宁环球 房地产 南京
产业排名
排名 行业 市场 占比
第九名 成人在职教育 4000 6.9%
第十名 医药 3500 6.08%
第一名 餐饮业 8000 13.9%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RMB/平方米）
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南京各区域房价单价分析
建邺 45,922.19
鼓楼 45,669.48
玄武 41,342.04
秦淮 35,141.3
雨花台 35,028.32
江宁 27,985.2
房型价格分析
明细表
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IOT: Internet of Things (IoT) is described as a vast network of devices connected to the internet including smartphones, tablets and almost anything with a sensor on it like cars, wearable devices, machine in production plant. What it does actually is these “things” collect data and exchange it between the devices. IoT not only involves connection and integration of devices that monitor the physical world like temperature, sound, images, motion but also aggregation, relationship and analysis of information so that action can be taken depending on the situation.

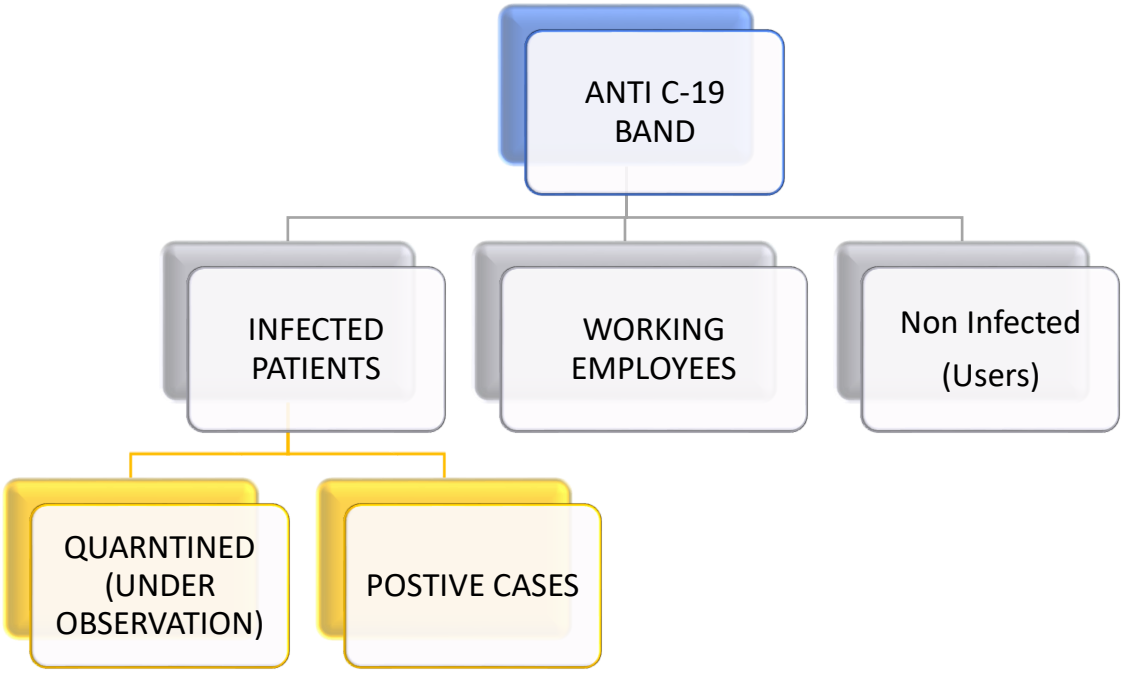
Proposed Model:

Infected Patient

In this model a band is provided to a patient infected form coronavirus and the band has unique barcode on it to make identity of every patient unique and also all the details of patient can be accessed from the barcode. Band has inbuilt GPS tracking system, temperature sensor , heartbeat monitor , alarm system , bioimpedance sensor to measure breathing rate , and ambient light sensor ALS which enhances the battery life.

GPS tracking system will help the user as well as the third party (police , Health department , doctors and others) in monitoring the quarantined patients at their home and also it will help the user to avoid travelling to that high risk area.

In GPS satellite view the patients quarantined in particular area eg: in Bhopal say in Govind Pura Locality the house of the patient would be marked by red dot so that non infected person/ user travelling in high risk area can get information through database of known cases across that particular area and similarly in India . this process is followed by regular upgradation in data of Covid patients which is increasing in interval of one hour.



Process Flow Diagram

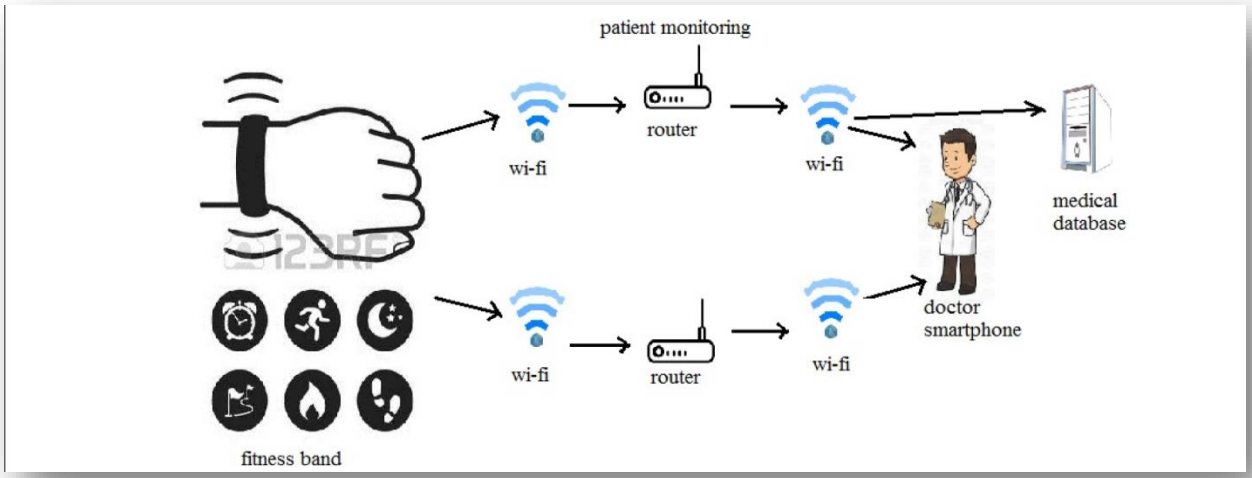
The patient has to wear band in working hour and if removal of band or any suspicious activity is detected then the temperature sensor inside the band having threshold value of normal body temperature will sense the room temperature as soon as band will be removed and the alarm would start ringing in smart phone connected with band as well as a message would be sent directly from server to police or third party monitoring the patient.

Anti C-19 is compliant with military-level durability standards, and has water resistance of 5ATM.

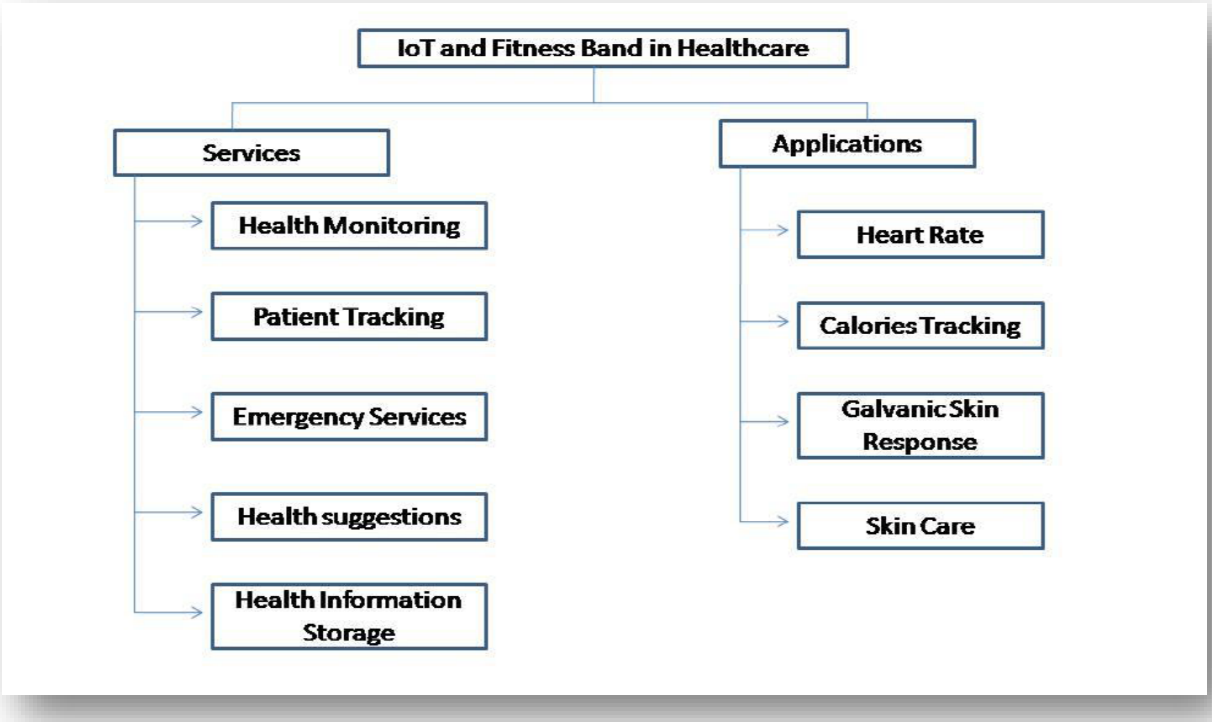
Non -Infected Person / Working Employee

There will be a mobile app which will be connected to the same server as the bands this mobile app will help the Non-Infected persons to get the current real time situation of any place before they go out of their home for any reason also this mobile app allows the Non-Infected persons to get a proper notification or alarm if even by mistake they come in an area where there is a infected persons and this tracking is on real time data so there is maximum chances that the possibility of coming in contact is minimum.

Also at the part of data visualisation the people can even get the data in the form of pie chart and bar graph that at which place the density of infected person is maximum and minimum and also by markers on the map that place will be marked on the map



Health Care System



Flow Chart

HARDWARE REQUIREMENT:

ANTI C-19 BAND

GPS Tracker

Temperature sensor

Alarm

Smart phone

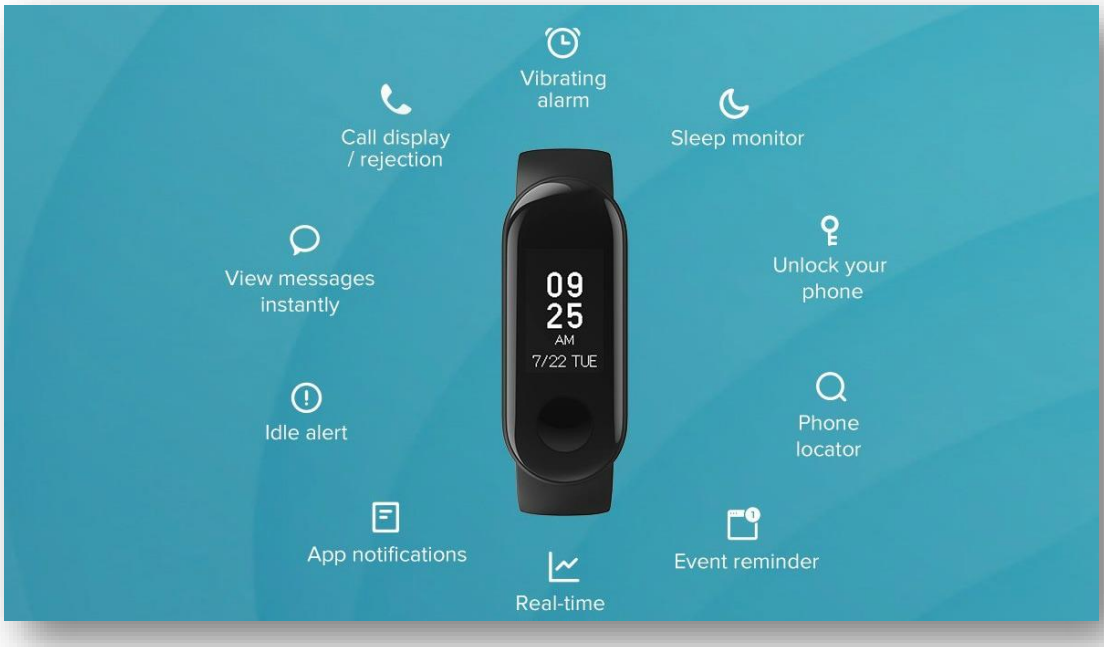
SOFTWARE REQUIREMENT

Application of C-19 Band

Server

Monitoring system

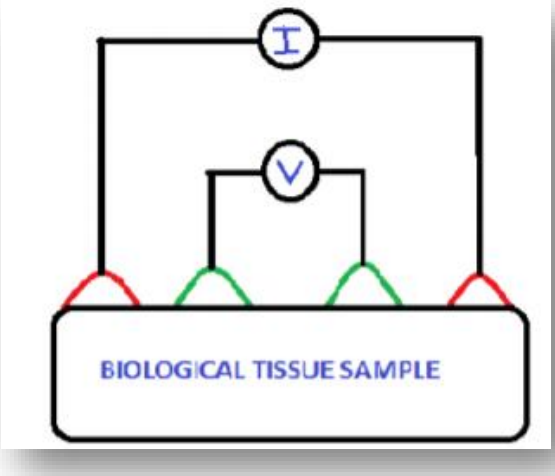
Anti C-19 Band Specifications:



Features to be Added In Band:

Body Temperature Sensor

Bioimpedance Sensor



ADVANTAGES:

By providing this band it will be easy to track those communities who are violating the lockdown and quarantine procedure

This will enable the health practitioner to monitor patients without coming is direct contact with them

By providing this band to the employees of different government sectors who are working during present time of lockdown such as power sectors, electricity departments etc. this band will also help in monitoring their health status and will reduce the fatality rate of Coronavirus

Easy to track highly risky areas at district level and user can track himself also if he is there whether he need to get test or not

Data visualization can be done from the cloud data.

It is cost effective and economic also.

COST CALCULATION:

Estimated Manufacturing Cost of one Anti C-19 Band = Rs 1000

No of Positive Covid Patients = 5500 (As per data of Government of India)

Total Cost in distribution of Band = Cost of one band × Number of Covid-19 Patients

= 5500 × 1000

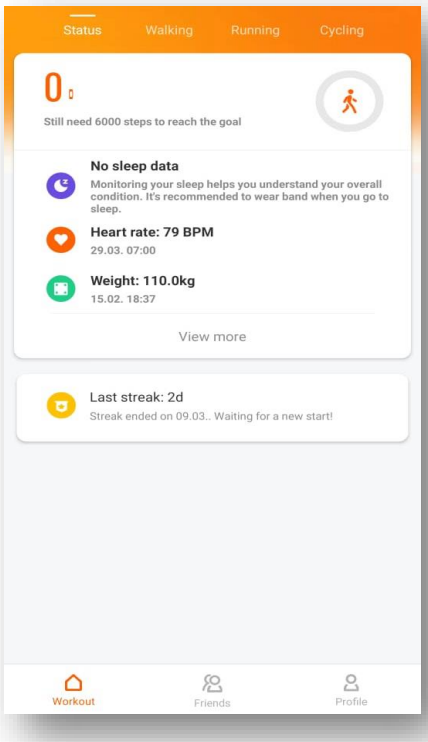
= 55,00,000

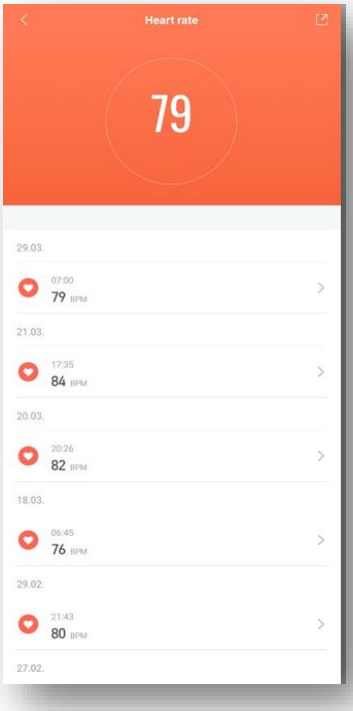
= 55 lakhs

Anti C-19 Band Mobile Application:

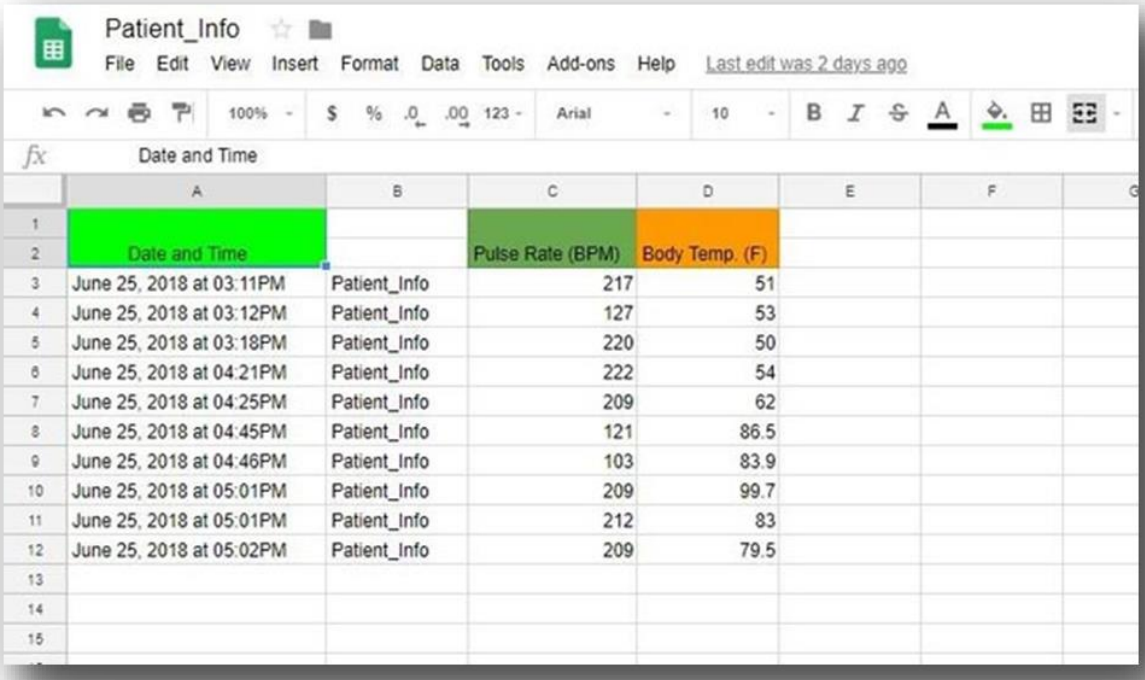
Now the Band is controlled by a mobile application connected with the server which has the following features:

Information Recorded by Band: When patient will start use Anti C-19 band to synchronize device data, personal data is recorded. For example, activity information, sleep, BMI, heart rate for each time, resting heart rate, heart rate for whole day, weight, body composition (Body fat percentage, muscle mass, moisture content, basal metabolism, visceral fat level, bone mass content, resistance value, protein), the time length of one-legged standing with eyes closed testing and the time of measuring.





Data in Mobile Application Connected to Server



	A	B	C	D
1				
2	Date and Time		Pulse Rate (BPM)	Body Temp. (F)
3	June 25, 2018 at 03:11PM	Patient_Info	217	51
4	June 25, 2018 at 03:12PM	Patient_Info	127	53
5	June 25, 2018 at 03:18PM	Patient_Info	220	50
6	June 25, 2018 at 04:21PM	Patient_Info	222	54
7	June 25, 2018 at 04:25PM	Patient_Info	209	62
8	June 25, 2018 at 04:45PM	Patient_Info	121	86.5
9	June 25, 2018 at 04:46PM	Patient_Info	103	83.9
10	June 25, 2018 at 05:01PM	Patient_Info	209	99.7
11	June 25, 2018 at 05:01PM	Patient_Info	212	83
12	June 25, 2018 at 05:02PM	Patient_Info	209	79.5
13				
14				
15				

Real time Monitoring of Patient

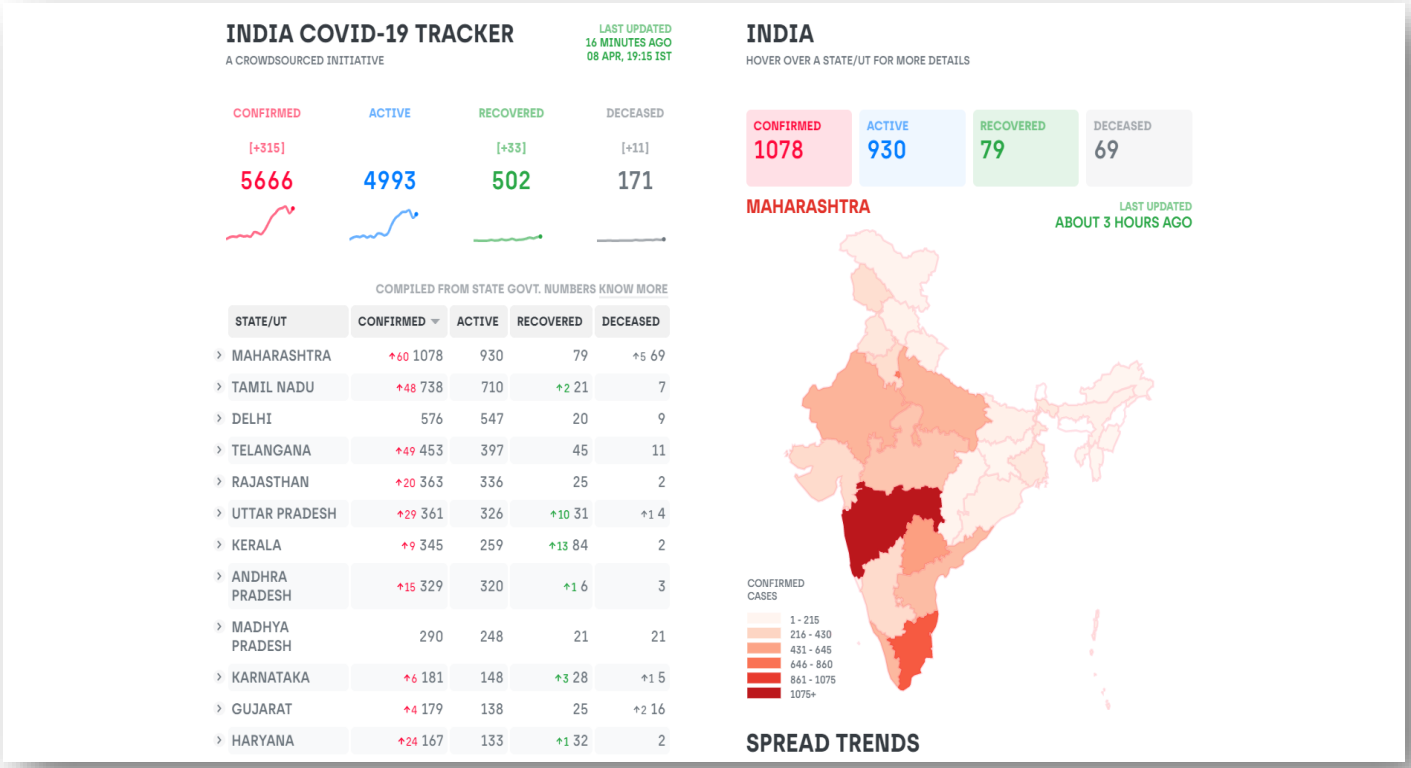
Location Information: When patient will use location-based program services or features, we may collect your location information such as your GPS information, tracing data, longitude and latitude through your mobile phone device.

Visitor information: When using the visitor function, a visitor can experience our products and certain limited services. The data of the visitor (gender, height, date of birth) will be collected and used to calculate and present the results of certain services the visitor experiences. But we will not save the above data.

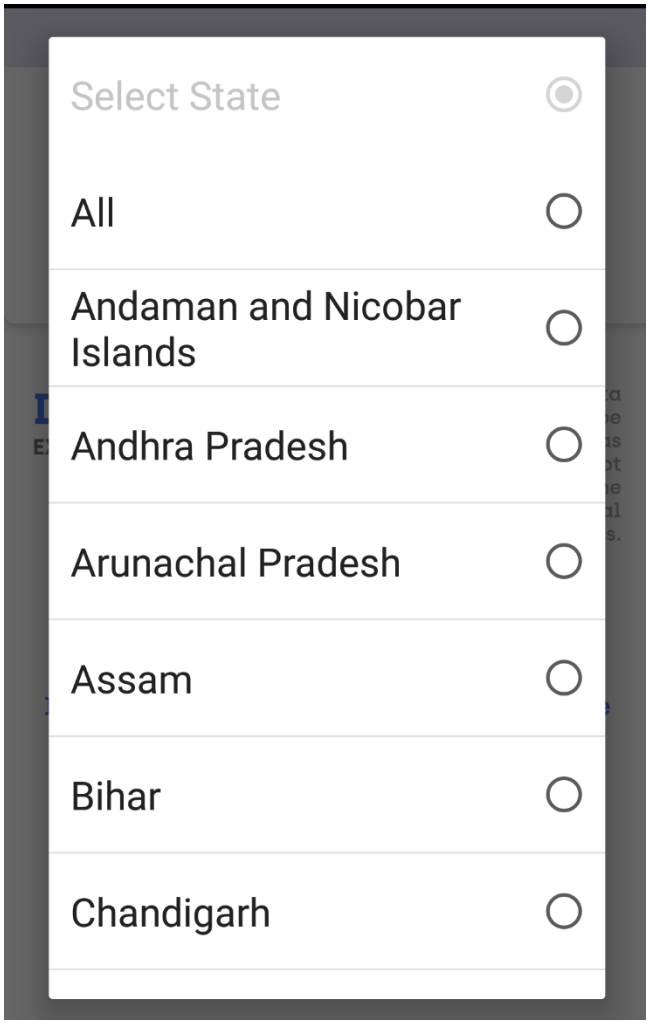
Other Information: We may also collect other types of information which is not directly or indirectly linked to an individual and which is aggregated, anonymized or de-identified.

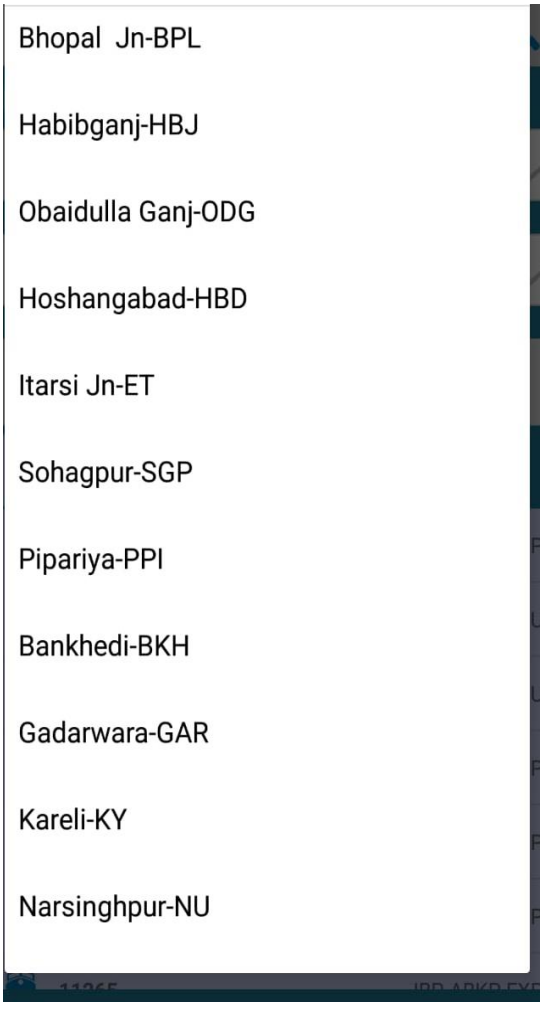
Monitoring Party can select and customize up to ten preferred activities from mobile application which they want to monitor and can ease their tracking activities

Apart from above features the application will also show the current statistics of Covid-19 cases in divided on basis of district wise, state wise of country. Which will get updated automatically every hour from data continuously stored in cloud and user will also able to see the statistics of highly risky zones so that they may track themselves by own.



Real Time Tracker



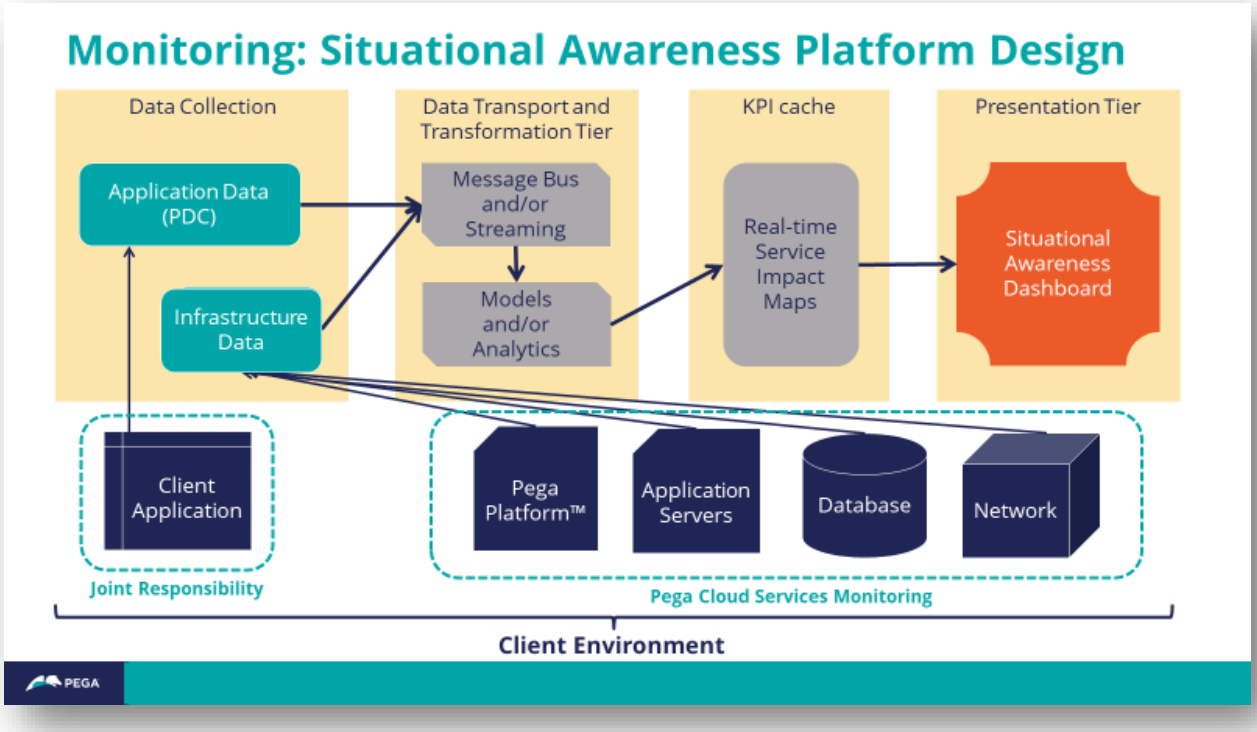


TERMS OF SERVICE

These terms of service (Terms) govern your use of the ANTI C-19 Band application for mobile and handheld devices (App) and the services provided thereunder. Please read these terms and conditions (Terms) carefully before you download, install or use the App. By clicking on the "I Agree" button, you signify your acceptance of the Terms, and your agreement to be bound by them. The Terms may be amended from time to time with notice to you. In order to continue using the App, you will be required to accept the revised Terms. Failure to comply with the Terms can result in suspension of your ability to use the App.

1. SERVICE OVERVIEW

The App is part of a service designed to enable registered users who have come in contact with other registered users who have tested positive for the severe acute respiratory syndrome Coronavirus 2(COVID-19) to be notified, traced and suitably supported (Services). When the App is installed on your mobile or handheld device, it detects when your device comes within Bluetooth/ GPS range of any other registered user's device and initiates a protocol by which all necessary personal information(including location information) about that other registered is collected, and securely stored in the Appon your device. In the event you test positive for COVID-19, the Government of India will contact all registered users that you have come in contact with you over the past 30 days to administer the appropriate medical intervention. Similarly, you will be notified if any of the persons you came in contact with over the past 30 days has tested positive for COVID-19.



You agree to turn on and allow the App access to the Bluetooth and GPS services on your mobile or handheld device. You acknowledge that if your device is switched off or in airplane mode, if Bluetooth and GPS services on your device are turned off or if you revoke the App's access to Bluetooth and GPS services on your device, it will not be able capture all necessary information which will impair the completeness and accuracy of the Services. You agree to keep the mobile or handheld device on which the App is installed in your possession at all times and to not share it with or allow anyone else to use it. You acknowledge that if you do so it could result in you being falsely identified as being COVID-19 positive or not being identified when you are.

3. USE

You agree that you will only use the App in good faith and will not provide false or misleading information about yourself or your infection status. You agree that you will not do anything to throttle,engineer a denial of service, or in any other manner impair the performance or functionality of the App. You agree that you will not tamper with, reverse-engineer or otherwise use the App for any purpose for which it was not intended including, but not limited to, accessing information about registered users stored in the App, identifying or attempting to identify other registered users or gaining or attempting to gain access to the cloud database of the Service.

4. PRIVACY

You hereby consent to the collection and use of your personal information for the provision of the Services. The details of the personal information collected and the manner in which it collected and by whom as well as the purposes for which it will be used is more fully set out in our privacy policy which is available here. You are free to choose not to provide this information at any time by revoking the App's access to Bluetooth and GPS services or by deleting the App from mobile or handheld device. However, should you do so, you acknowledge that you will no longer be able to avail of the Services.

5. DISRUPTION

You agree that you have no expectation of, or right to permanent and uninterrupted access to the Services. While the Services are intended to be accessible to you from everywhere on a 24x7 basis, from time to time and without prior notice of downtime, access to the App or the Services or to any part thereof may be suspended on either a temporary or permanent basis and either with respect to all or a certain class of users.

7. GOVERNING LAW

These Terms shall be governed by the laws of India.

CONCLUSION:

To come out with this pandemic situation this band can help the surveillance department as well as health care departments to tackle the challenges occurring day by day.