# Health tracker:

This is integrated with the same app and provides multiple benefits to the wearer. Innovative health tracker is a revolutionary and necessary addition to the medical industry

Disruptive features-

1. Discrete and sleek because of minimal sensors to extract information
2. Alarm system to notify user for medicines, emergency etc
3. Innovative method for BP measurement which

    A. Provides readings with a much higher accuracy

    B. **Enables autonomous and continuous reading over the day** , an advantage over all existing methods which are tedious and fluctuate over a lot of variables.Continuous readings help in better understanding the patient's body than restricted, tiresome visits to the hospital. **All of this could go waste if the patient is even little tense at the hospital!**

   C. Vast volume reduction compared to BP reading machines
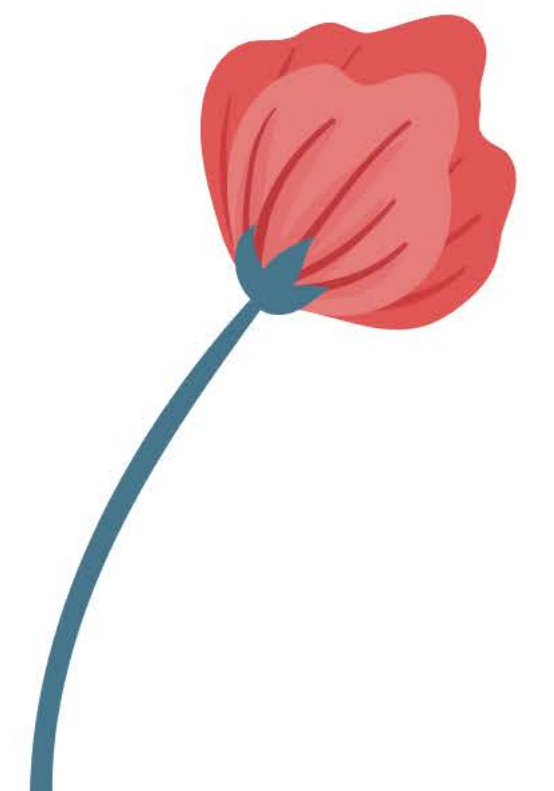
In the form of a band , this tracker is equipped with sensors which measure the necessary vitals of the patient, namely Blood Pressure, Oxygen levels, Heart rate and Body temperature.Data from these sensors will be sent to the app via Bluetooth or any chosen medium.
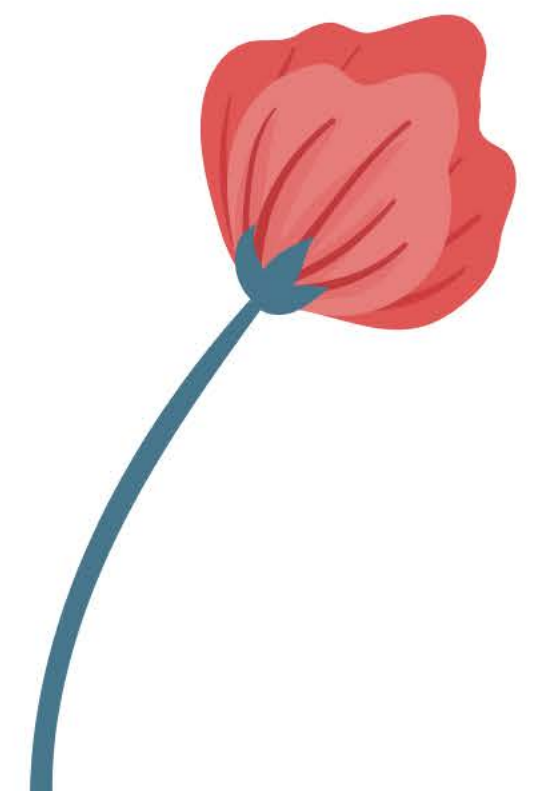
Oxygen levels and Heart Rate will be measured with a method called photoplethysmography which measures differences in light reflection of two different wavelengths from blood. Relative differences in absorption of these two wavelengths based on its oxygen content are graphed over time. Relative percentage change and periodicity of reflection determine oxygen content and heart rate respectively.

Measurement of blood pressure will be carried out with a two pronged approach to negate traditional bulkiness of cuffed methods and vast inaccuracies in all non invasive methods.

Method of Blood Pressure measurement will consist of analysis of data from the Pressure sensor in the vicinity of the artery and the information extracted via Photoplethysmography..
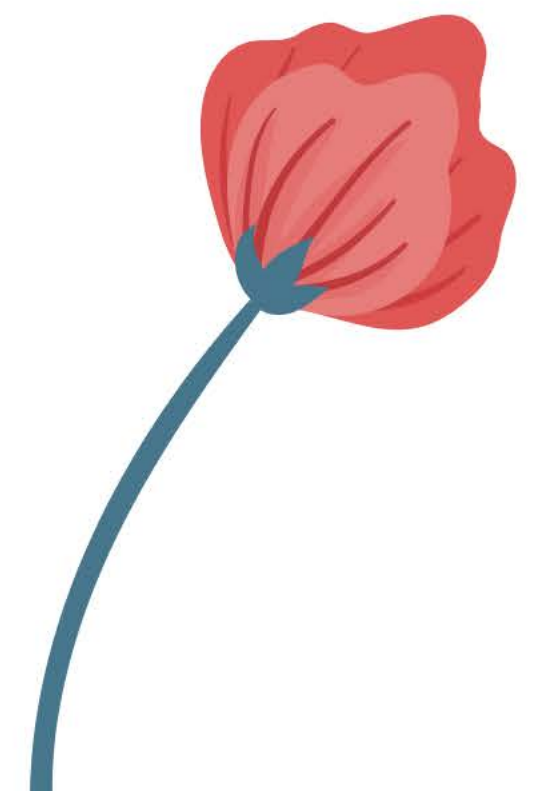
Traditional pressure based bp reading is enabled by manually exerting force on the pressure sensor pad beyond blood flow cutoff point. Subsequent point of flow resumption is captured by pressure fluctuations identifiable as Korotkoff noise, pressure reading at this point is noted and identified as Systolic Blood Pressure. This method is susceptible to time delays.
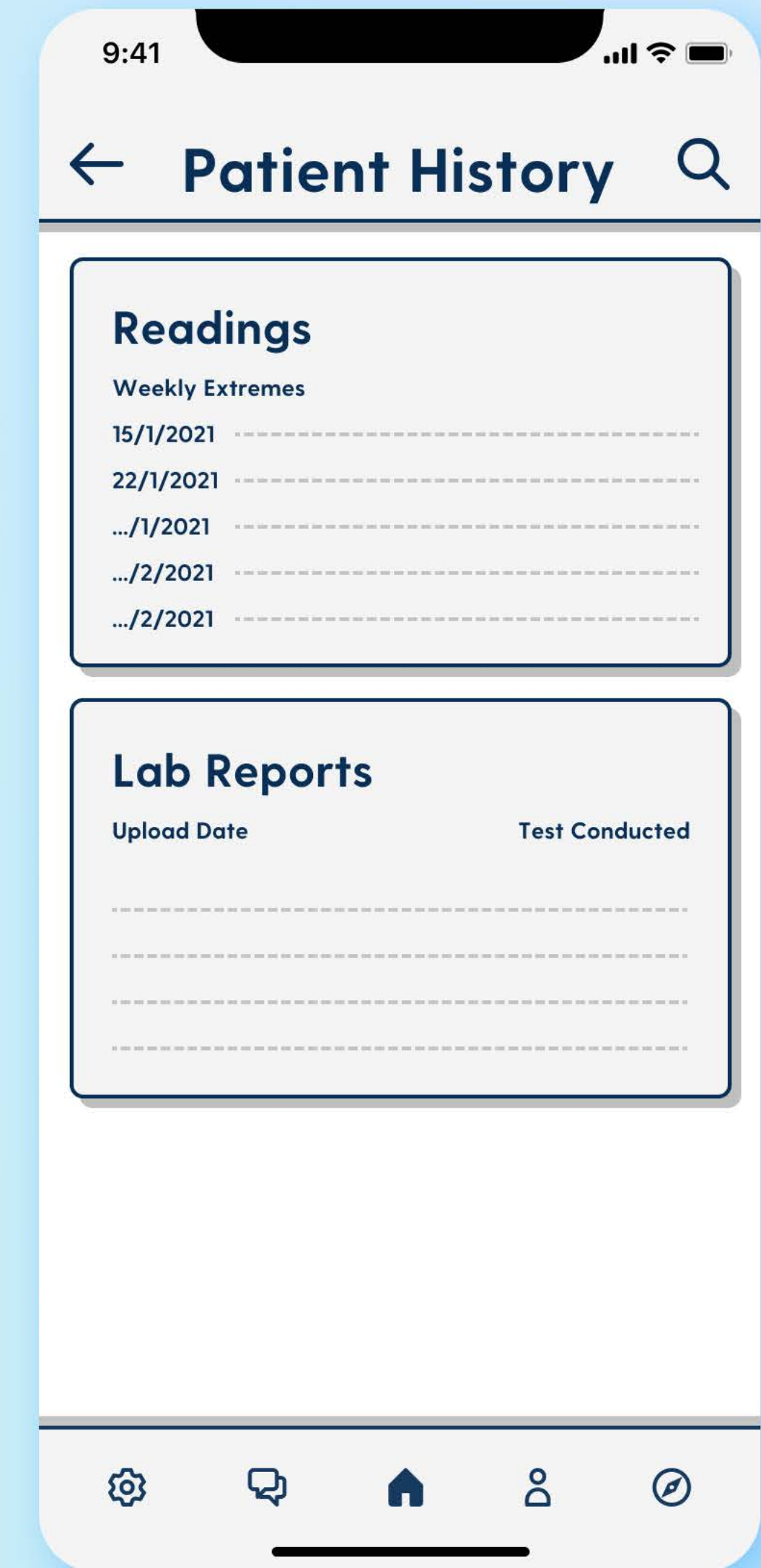
Parallely the volume and volume change of the blood vessel during blood flow is a parameter whose data is discarded during pulse oximetry. Readings over a variation of heart rate will reveal a trend for variation of respective peaks noted during photoplethysmography. This is because of a change in volume of the artery to accommodate a higher flow rate without unhealthy change of blood pressure. The volume change vs heart rate trend is one with minimal variation, hence providing us with some absoluteness in blood volume.
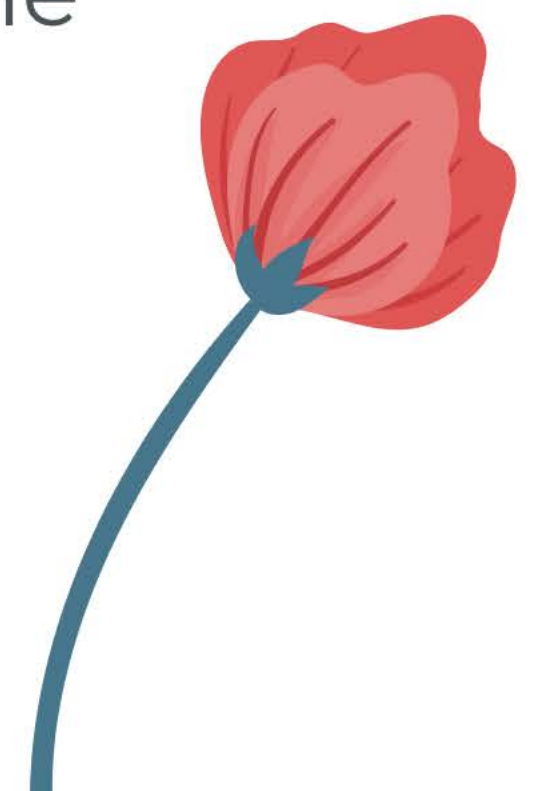
Now blood pressure can be measured by just application of a small force on the pressure sensor(this process can be automated), relative change in blood volume measured will reveal the ratio of the applied force and blood pressure.

This health tracker will be sending in to the app:

1. extremities in the readings in a particular week, or a definite time interval, will be also present on the app.

2. Live tracking connected, app with the band.

3. Doctor's visit time stats. Of all doctors with the user.

9:41

← **Patient History** 🔍

Readings

Weekly Extremes

15/1/2021

22/1/2021

.../1/2021

.../2/2021

.../2/2021

Lab Reports

Upload Date   Test Conducted

Health tracker will be for basic parameters as explained above. Certain limits can be manually or auto set beyond which notification is sent to a loved one.

There will be TWO LIMITS - just beyond normal or Unusually high.
In case it's Beyond Normal, notifications will be sent to patients/users.
But when it's Unusually high, and it can get further dangerous, a Call with a voice message