

Fetal Monitoring and Analysis to prevent intrauterine deaths and still births

Concept



Idea



Aim



Perspective



Perspective



Pakistan has the highest stillbirths rate



Occurrence

- In 2015 2.6 million still birth cases were reported
- 77% of stillbirths occurred in South Asia & sub-Saharan Africa



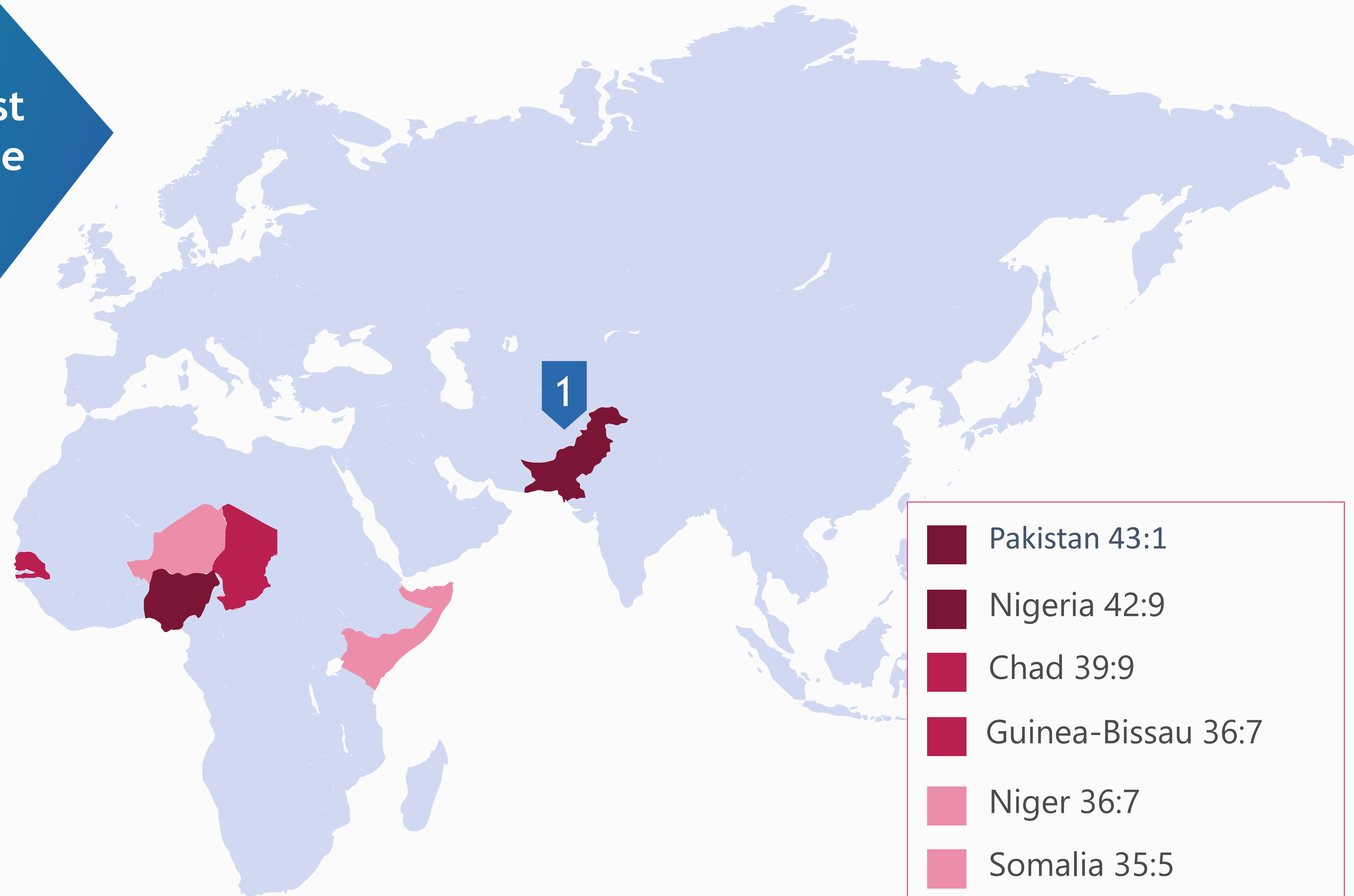
Rate

- In Pakistan the reported rates of stillbirth ranges 36 - 70 /1000
- Global 18.4/1000



Rural Areas

98% of these take place in low income/rural areas.



Problems faced by expecting women in rural areas:



Lack of facilities

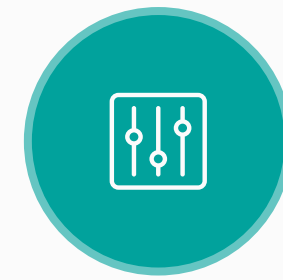


Inconvenience



Unaffordable

fetal and neonatal survival...



Health care facilities



Specialized Care



Easy Access



Public awareness



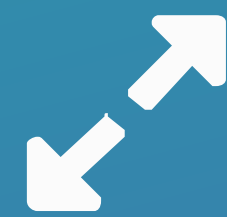
Timely diagnosis



OUR GOAL IS TO
ALLEVIATE the
RISK ...



Fetal Heart Rate
Monitoring

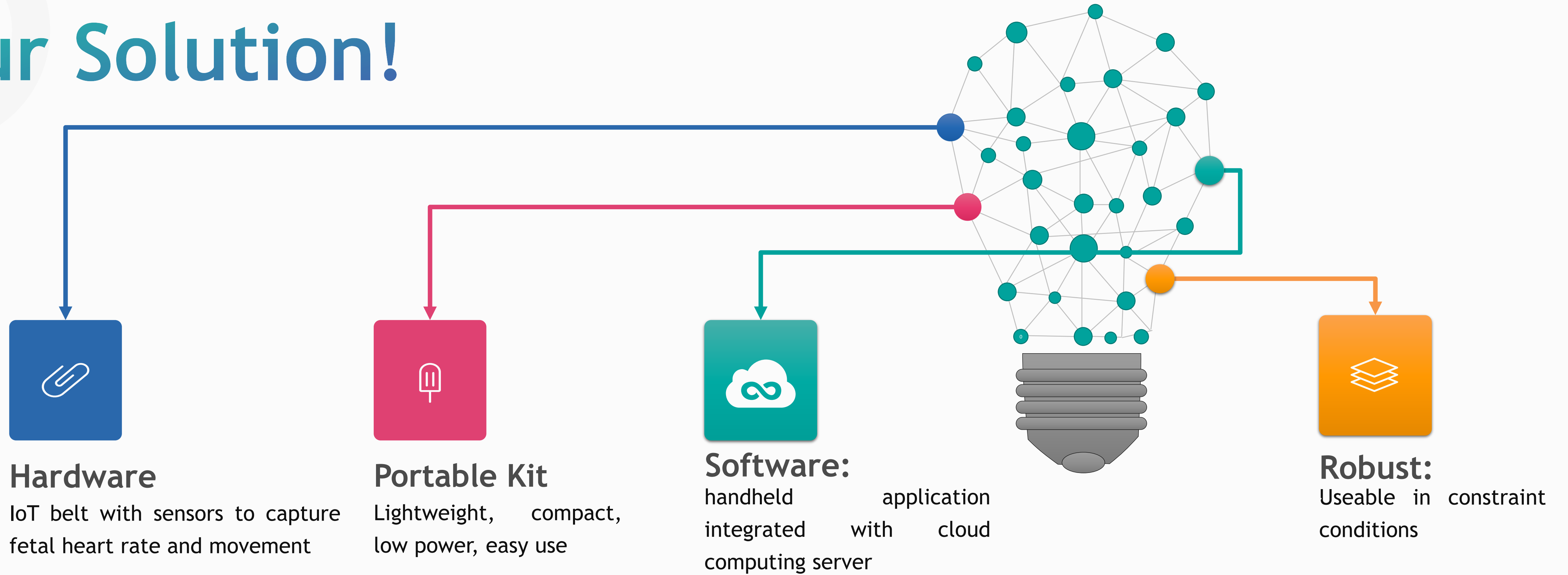


Fetal Movements
Monitoring

It is very important to identify prompt changes in the foetus health by “monitoring the Fetal Heart Rate and foetus movements



Our Solution!



01

Real time
monitoring

02

Automated
analysis

03

Detects
anomalies

04

Provides
alerts

Fe Amaan - Who is it for?



Expecting women
(Urban areas)



Expecting women
(Rural areas)



Healthcare
workers



Gynecologist/
Obstetrician



Innovation



Comparison



Novelty &
Uniqueness



Value



Competitive
Advantage

Innovation





FeAmaan (فی امان)

Fetal Monitoring and
Analysis to prevent
intrauterine deaths
and *still births*



National University of Sciences
and Technology (NUST)



Areeba Kamil



Iqra Irfan



Sami Ullah

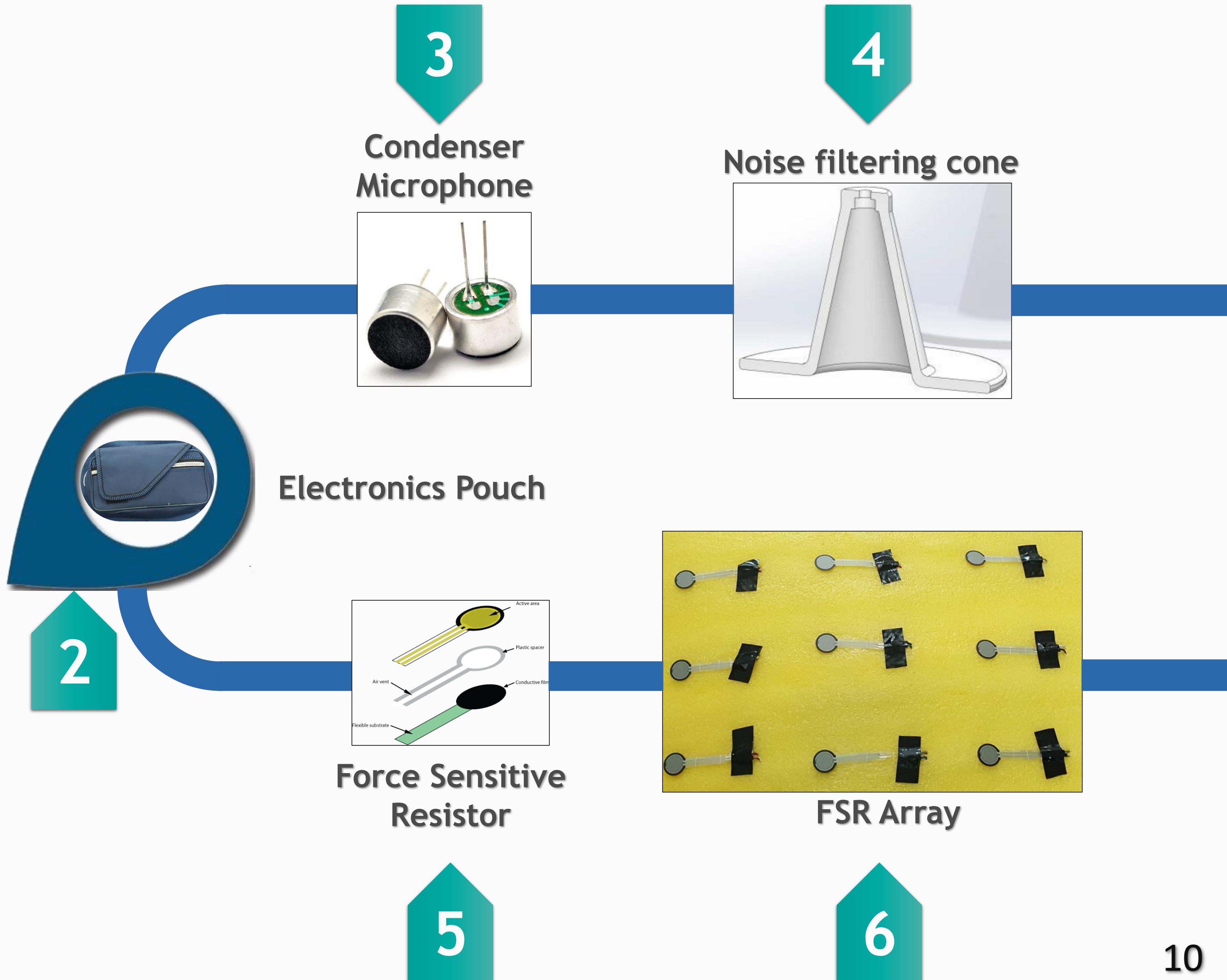


Dr. Imran Mahmood

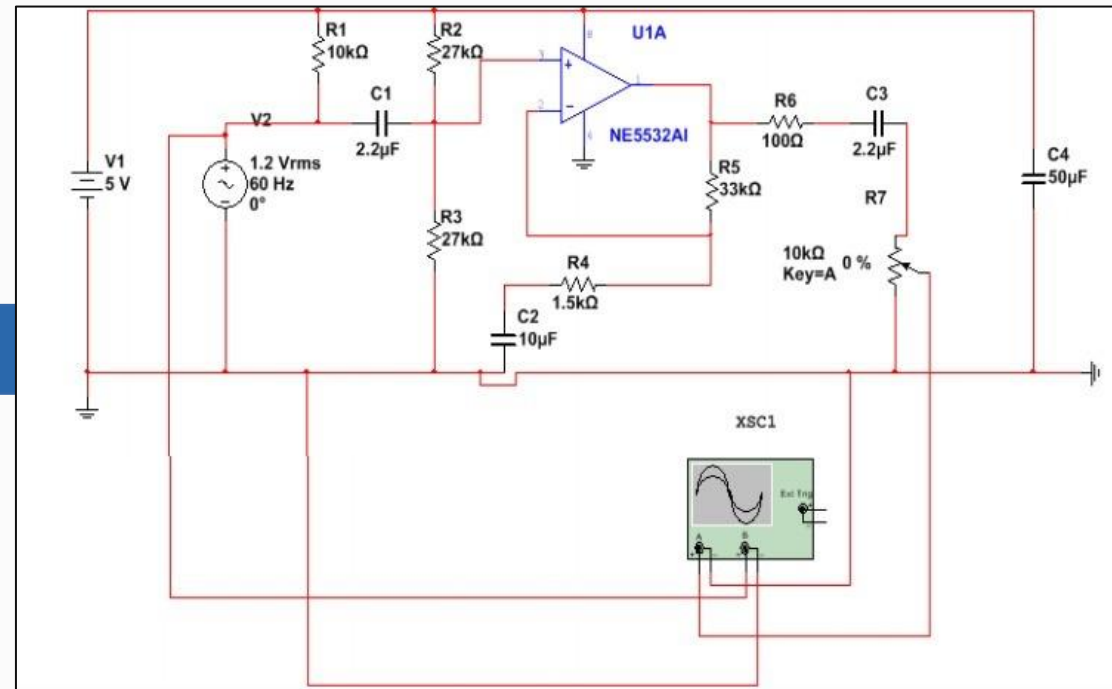
Fe Aman Workflow



Wearable Belt

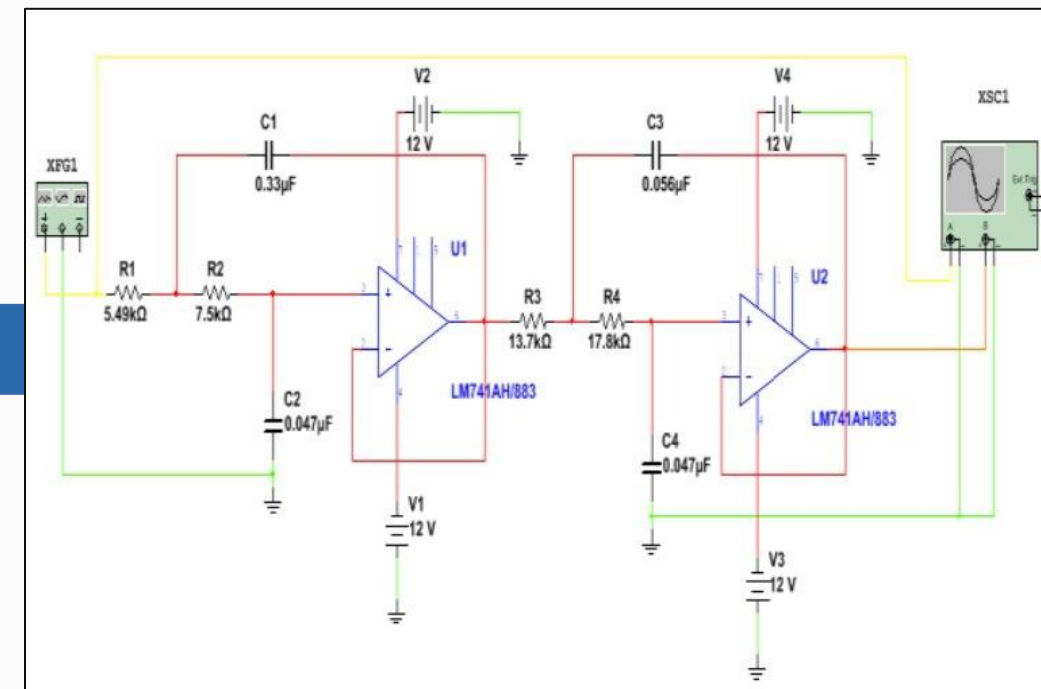


7



Pre-amplifier

8



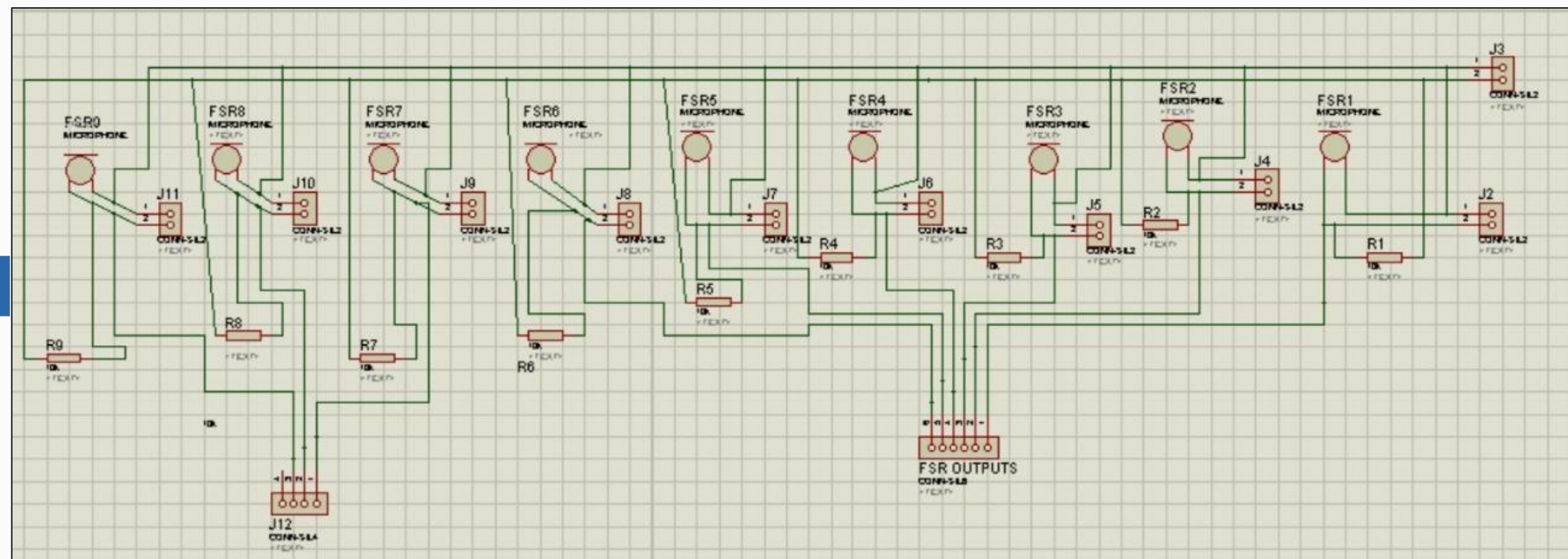
Butterworth filter

10



Aurdino MEGA

9

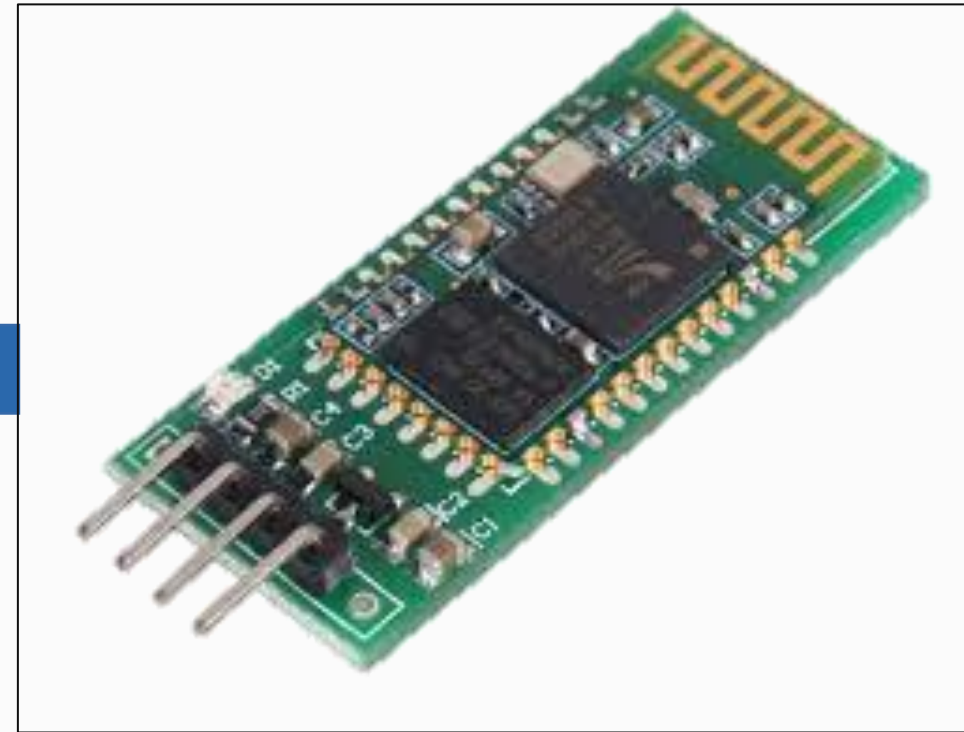
Force Sensitive Resistor
Controller

10



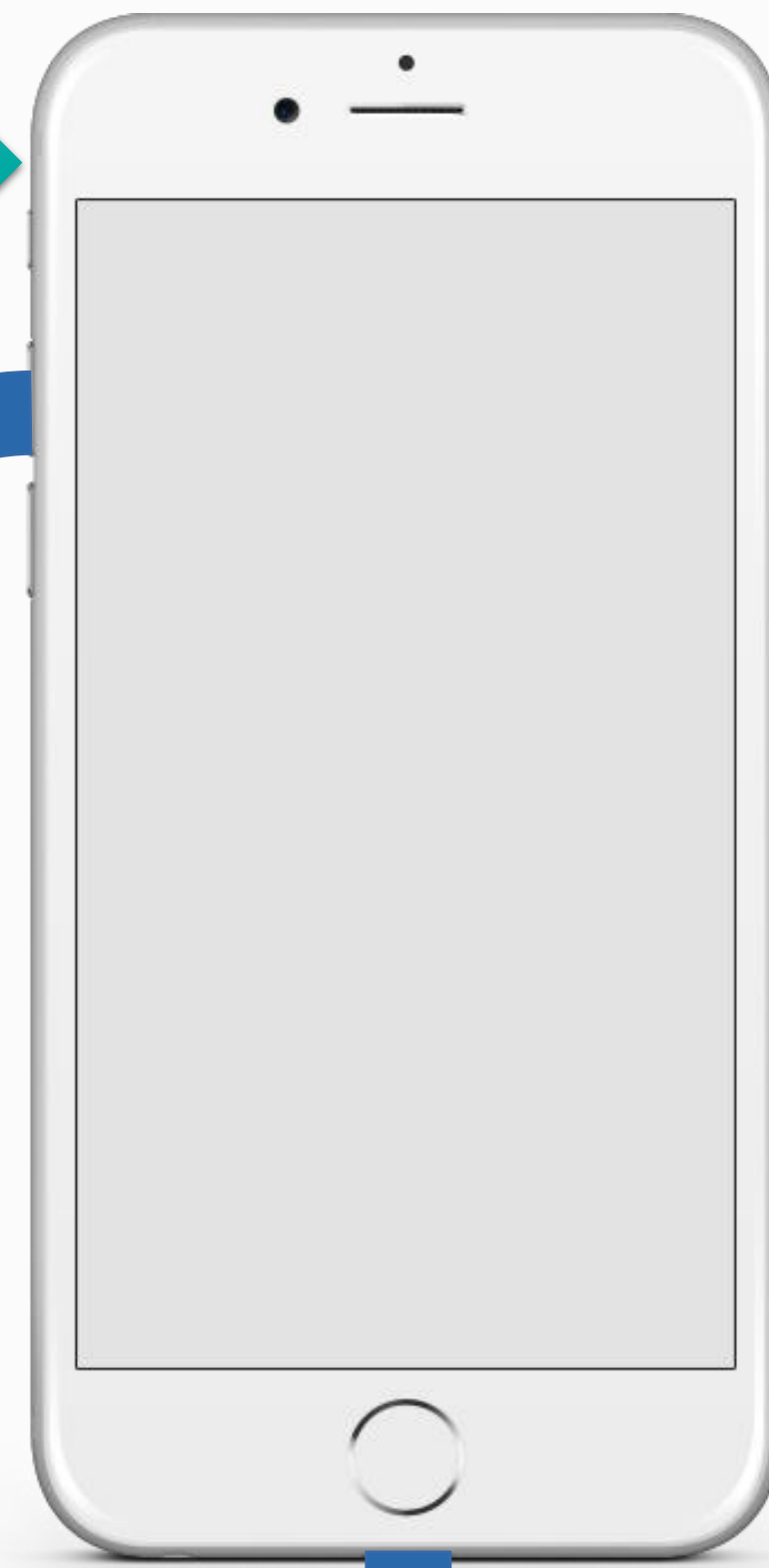
Aurdino MEGA

11

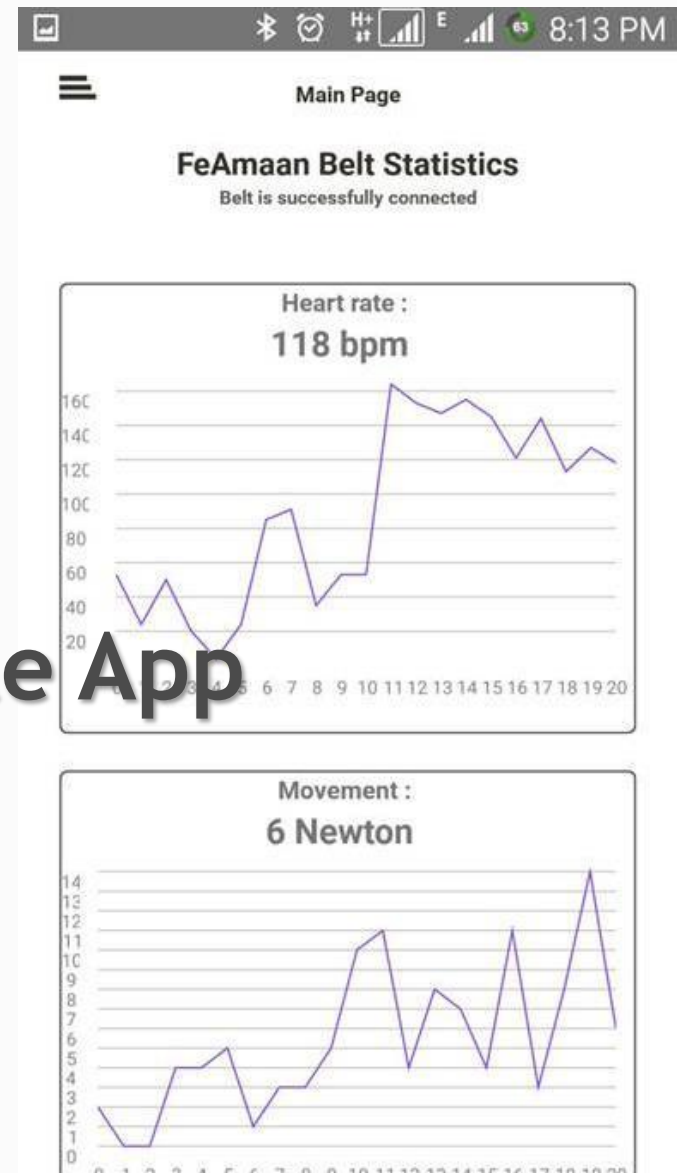


Aurdino Bluetooth

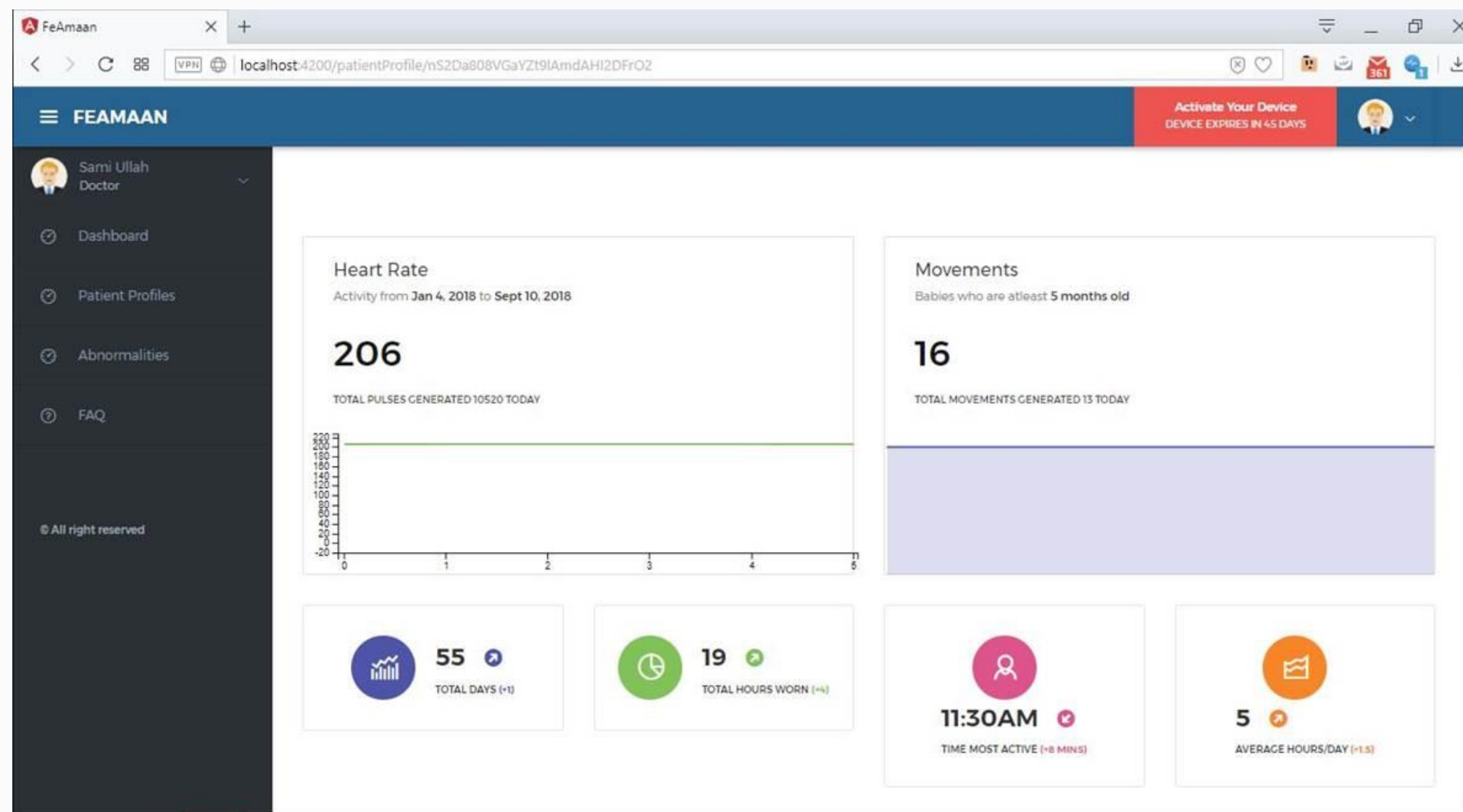
1
2



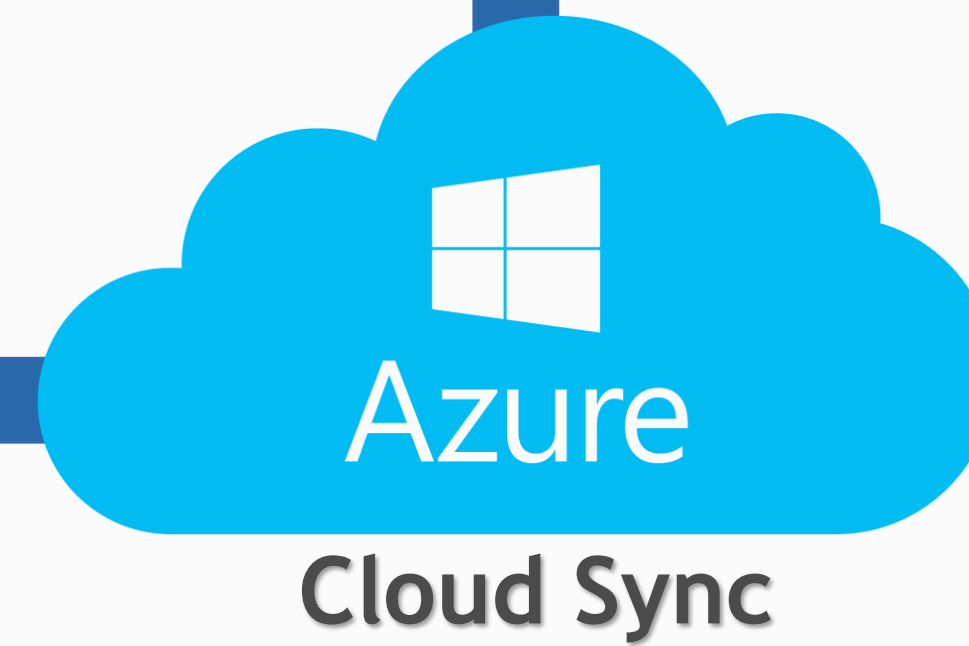
Mobile App



1
4



Web Dashboard



1
3



Innovation



Comparison



**Novelty &
Uniqueness**



Value



**Competitive
Advantage**

Innovation



1


Comparison with existing products



CTG

Can only be used and interpreted by experts

The image shows a white CTG (Cardiotocography) machine with a small screen displaying a green line on a black background. Several electrodes are connected to the machine, and a coiled cable is visible in the foreground.



Fe Amaan

Provides automated analysis.

The image shows a stylized blue line drawing of a human ear, which is the logo for Fe Amaan. The drawing is simple and elegant, with a heart shape at the bottom.


2

Comparison with existing products



Ultrasound

Heavy; Prolonged exposure is unsafe.



Fe Amaan

Lightweight and no harmful rays produced.

3

Comparison with existing products



Fetal Doppler

Only outputs fetal heart rate



Fe Amaan

Output fetal heart rate and perform automated analysis

4

Comparison with existing products



Moyo FHR monitor

Displays fetal heart rate

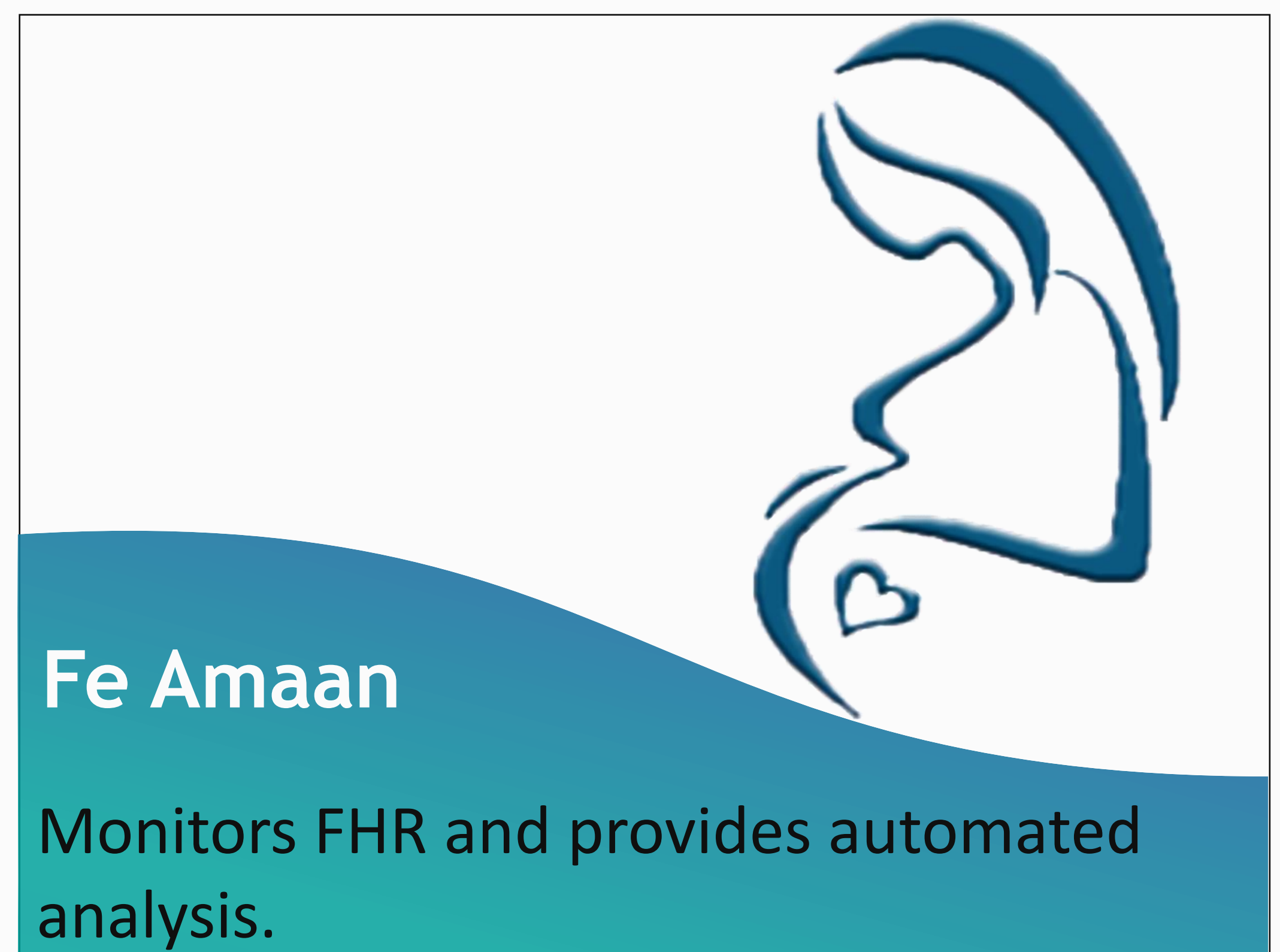


Fe Amaan

Displays graphs and values of heart beat and analyses it

5

Comparison with existing products




6

Comparison with existing products



The image shows the Bella beat device, which consists of a white smartphone mounted on a white stand. Next to the stand is a small white rectangular box with two circular sensors. The smartphone screen displays a blue circular graphic and the number 034.

Bella beat
Fetal heart sound



The image shows the Fe Amaan device, which is a blue line-art illustration of a fetal profile. A small heart icon is located near the bottom of the profile.

Fe Amaan
Monitors FHR and provides automated analysis.

7

Comparison with existing products



KickTrak
Counts fetal kicks

The image shows a white, handheld fetal kick counter device. It has a purple circular sensor at the top and a digital display screen in the middle. The screen shows a heart rate of 100 bpm and a count of 5 kicks. The device is shown against a white background with a blue wavy graphic at the bottom.



Fe Amaan
Counts fetal kick; matches them against movement patterns

The image shows a stylized blue line-art icon of a person's head and shoulders, representing a fetus. The icon is shown against a white background with a blue wavy graphic at the bottom.

Innovation



Innovation



Comparison



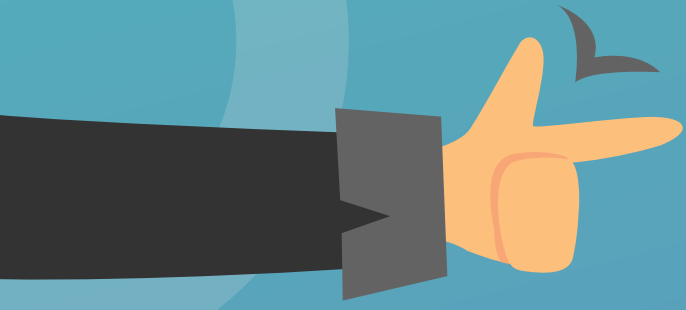
Novelty & Uniqueness



Value



Competitive Advantage



Fe Aman Uniqueness:



Blended

Captures fetal heart rate and movement



Realtime

Real time fetal Monitoring



Automated

Automated analysis based on approved medical standards



Innovation



Innovation



Comparison



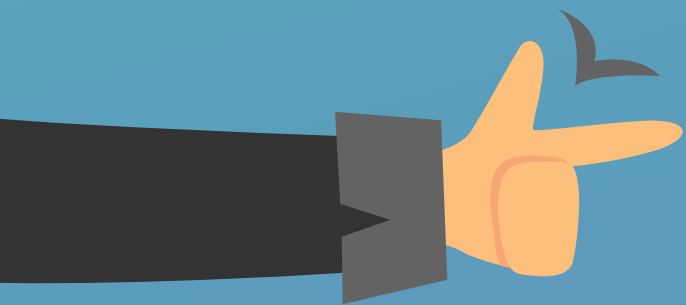
Novelty &
Uniqueness



Value



Competitive
Advantage





Fe Aman - Value proposition

Economy

- Low power, low cost
- Can work in constraint environments



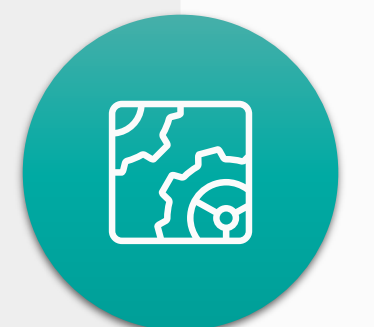
Social Impact

- Assistive Technology
- Helps reduce the gap between patients and doctors
- Reduce inequalities



Environment friendly

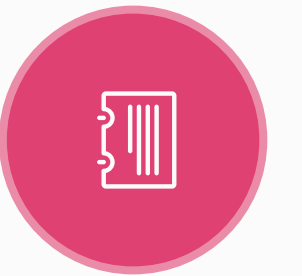
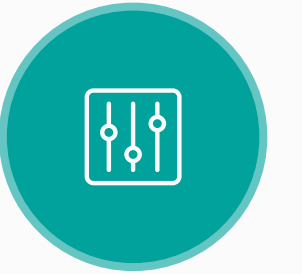
- No radiations or other side effects
- Passive - safe for mother and child
- Low powered



WE TAKE PRIDE IN OUR Sustainable Development Goals



Technology



Fe Amaan

Functionalities



Gather data
from sensors

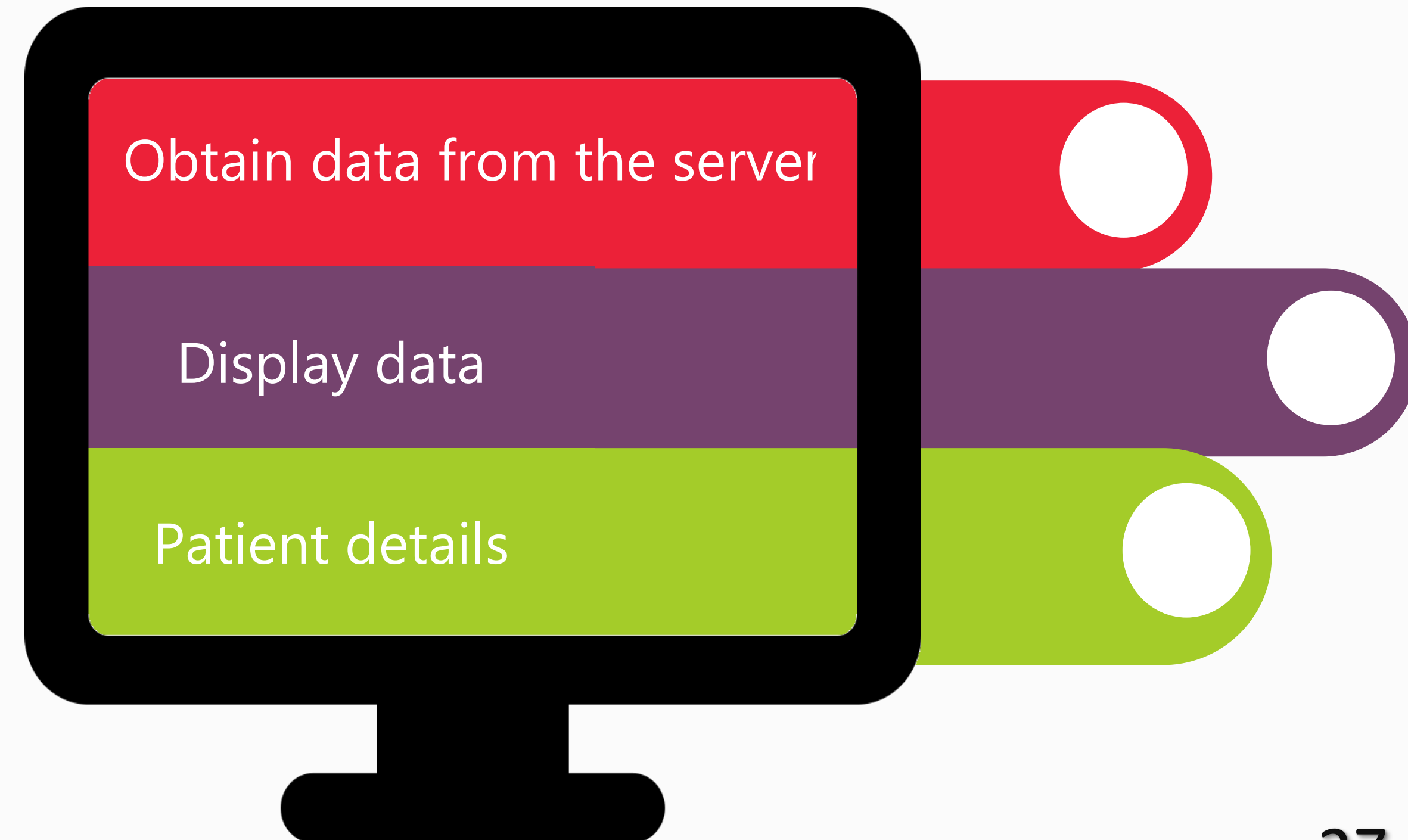
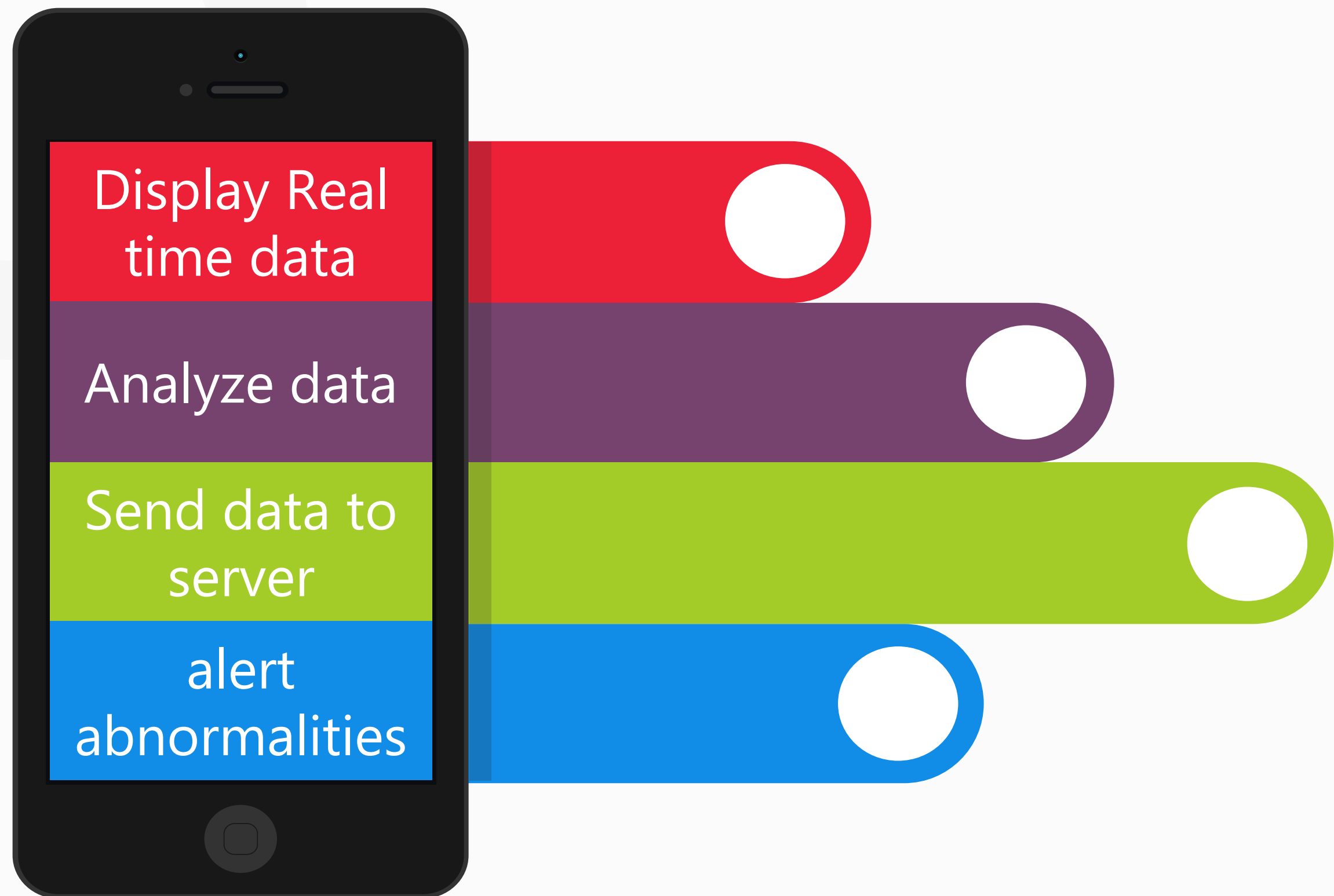


Filter data



Send data via
Bluetooth

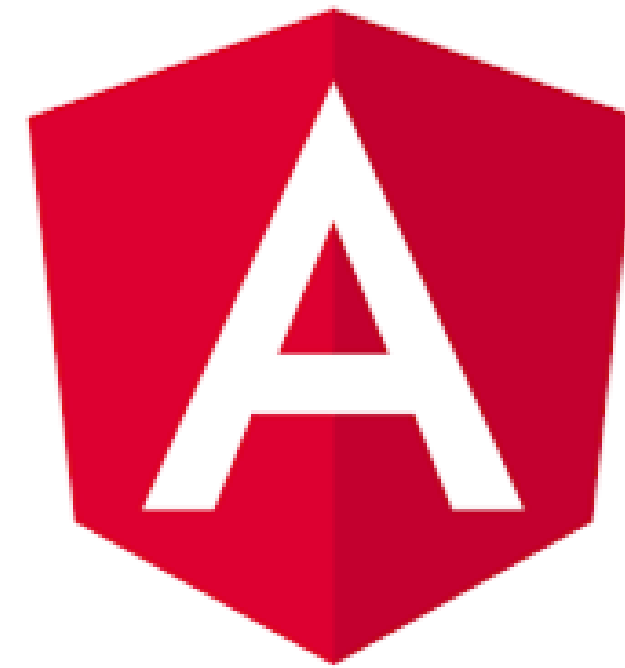
IoT Enabled Wearable Device



Fe Amaan Technologies used



Node JS

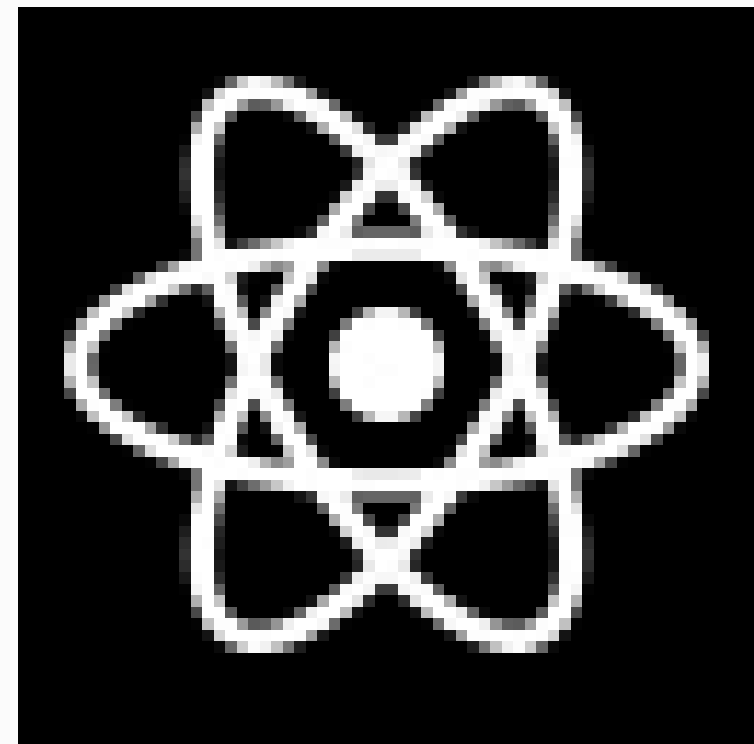


React Native

Azure



Angular



Fe Amaan

Features

Web Application: Doctors

- User Profile
- List and profile of all the patients.
- List of all appointments
- History of Patients visits and their associated dose and medicine.
- Location of all the associated Patients.
- Multiple features.

Mobile Application : Family

- Data analytics
- Input timeline and movements.
- Set appointments
- History of appointments and medicines
- Send alerts in case of anomalies

Fe Amaan Feasibility



Industry Analysis



Customer Surveys



Clinical Trials



Partnership



Involving end users