SNS COLLEGE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION)

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Department of Biomedical Engineering

Course Name: 19BMO302 & WEARABLE TECHNOLOGIES

Topic :Wireless Communication Techniques
Semester :6

INTRODUCTION

IoT technology, by its very nature has certain characteristics, and is creating a revolution in every aspect of human endeavor including healthcare.

CONNECTED WORLD WITH IOT

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HEALTHCARE MARKET

The global IoT in healthcare market is expected to grow at a 20.2% during the forecast period and reach USD 230.53 billion by 2026.

Global IoT Healthcare Market Size and Forecast, 2015-2024
(US$ Billion)

CAGR 20.2% (2016-2024)

2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

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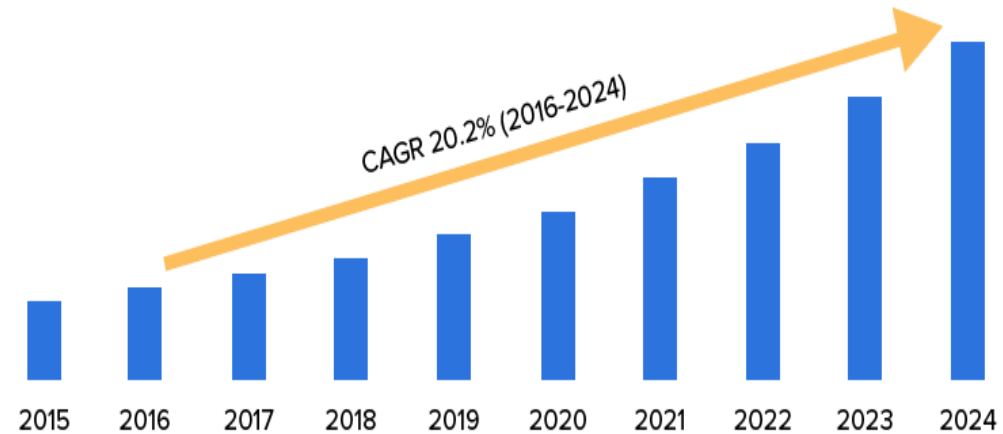
KEY DRIVERS FOR IOT IN HEALTHCARE

➢ Aging population (requiring remote or home based assistance)
➢ Skyrocketing healthcare costs
➢ Limited availability of healthcare professionals
➢ Sophisticated technological advances like MRI, genomics helps address hard to solve problems
➢ Global/public health (Pandemics)
➢ Demand for personalized medicine
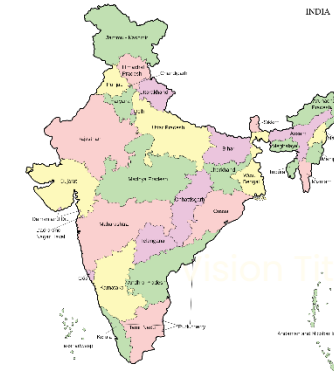
In India, with government expenditure on health as a percentage of GDP falling over the years and the rise of private health care sector, the poor are left with fewer options than before to access health care services

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INTERNET OF MEDICAL THINGS (IOMT)

- Monitoring elder patients
- Monitoring patient behavior
- Diet control
- Stress monitoring
- Monitoring social activities (e.g. social distancing)
- Preventive healthcare & continuous multiparameter monitoring
- Monitoring different therapies
- Drug delivery monitoring & compliance
- Using healthcare monitoring for drug discovery and development

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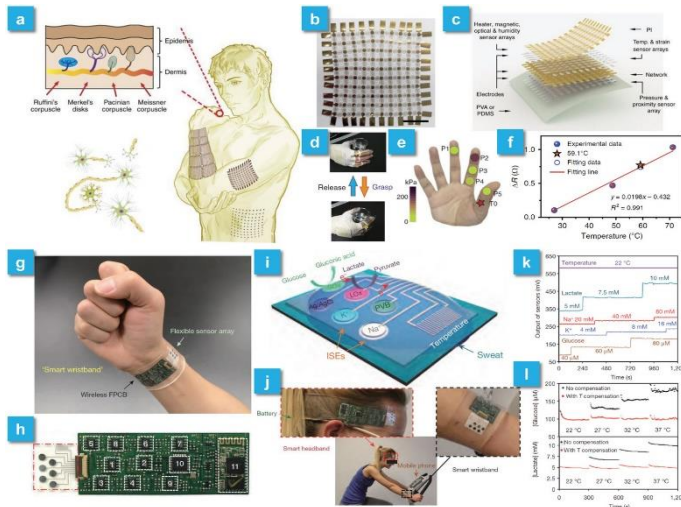
ENABLING IOT TECHNOLOGIES

➢ Hardware design improvements

➢ RFID

➢ Wearable devices

➢ Network Architectures (BLE, IPv6 etc.)

➢ 5G wireless technology

➢ Big data / data science

➢ Artificial Intelligence / machine learning

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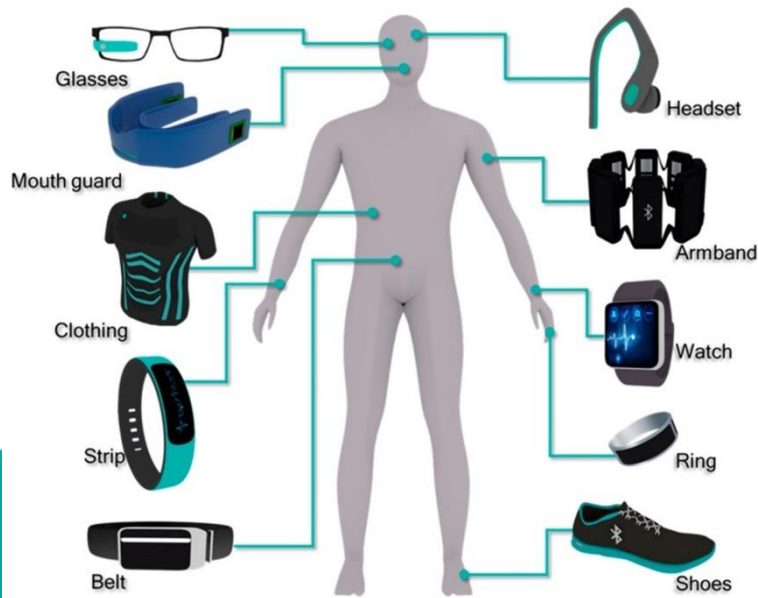
INNOVATION PRINCIPLE

IoT technology has helped meet increased demand from younger generations to receive virtual care through remote patient monitoring via wearables such as Fitbit and Apple Watch..

1. improves the patient experience by eliminating the need for some office visits, but also helps enhance patient care.

2. An Accenture report notes healthcare systems and insurance providers consider wearables a major part of their wellness IoT solutions
The report also states the majority of remote patient monitoring IoT investments are focused on cardiac conditions.

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COLLECTION OF WEARABLES

➢The IoT has the potential to connect billions and billions of "things" to the Internet by 2020, ranging from bracelets to cars

➢Breakthroughs in the cost of sensors, processing power and bandwidth to connect devices are enabling ubiquitous connections already.

➢In 2014 Goldman Sachs highlighted five key verticals of adoption: Connected Wearable Devices, Connected Cars, Connected Homes, Connected Cities, and the Industrial Internet.

➢Early simple wearable products like fitness trackers and activity monitors are already gaining traction. More than 300 such devices were on the market at the end of 2015, 40% are fitness trackers, 40% lifestyle/ computing, 10% healthcare adoption.
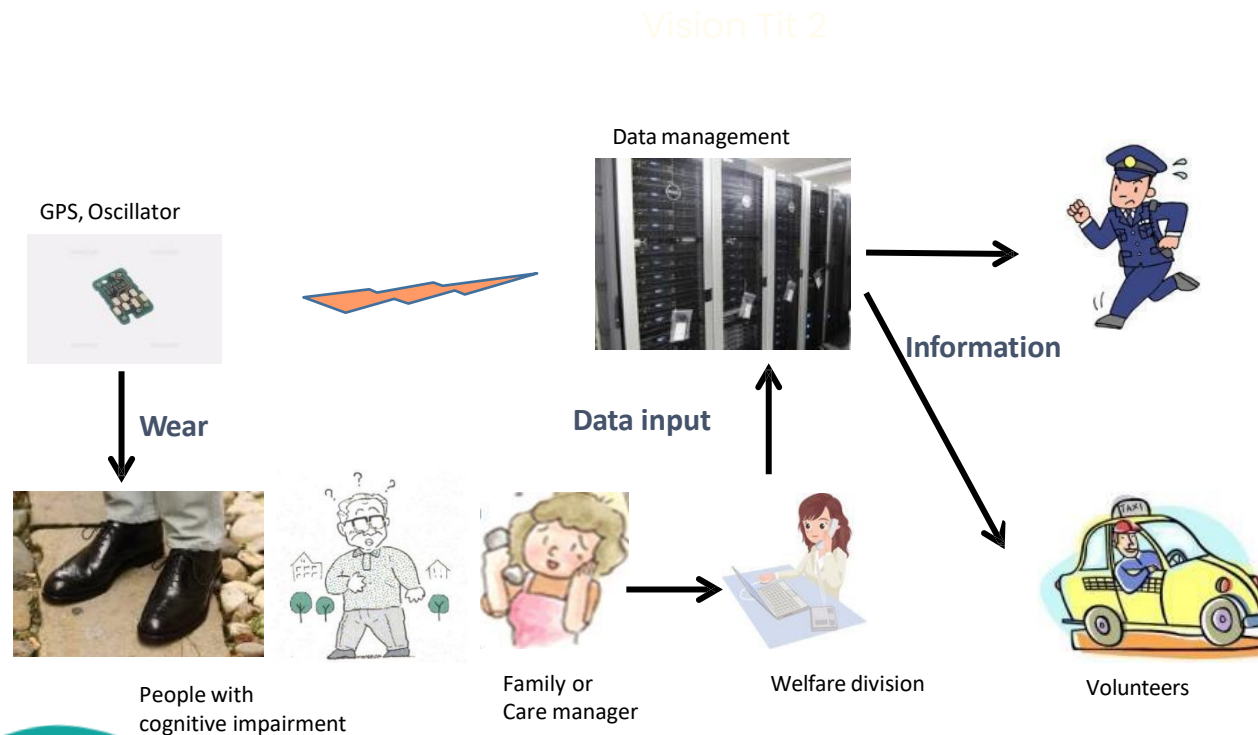
➢New Smart Wearable Devices being launched everyday.

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Aim: To find patients in early stage with secure data management system
1.Secure personal information system
2.Registration of patient and quick information delivery of lost patient
3.GPS and oscillator worn by patient – GPS in shoes because lost patient at least wears shoes

Data management

GPS, Oscillator

Wear

Data input

Information

People with
cognitive impairment

Family or
Care manager

Welfare division

Volunteers

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