INTERNET OF MEDICAL THINGS

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ABSTRACT
In many countries, the internet of medical things (IOMT) was explored in huge ways with also other strategies and it was mainly useful in the epidemic period of covid-19(corona virus). The internet of medical things, it will help in so many efficient ways such as safety (personal criteria), severity of the diseases of human beings and decrease the mortality rates. These are all achieved by the applications and technologies of internet of medical things. In the case of security also taken care by the internet of medical things in medical field across the globe. so many on-going and reaches show the possibility of high level of security that is incorporating with the internet of medical things. The new version of internet of medical things can emerge with new developing technologies like Artificial intelligence, big data analytics and Block chain offers more solution to the internet of medical things. Hence this article highlights the definition of **Internet of medical things**, Architecture enabled with healthcare system, Smart e-healthcare, IOMT applications, Security threats, Privacy of IOMT, Security of IOMT, Advantages and Disadvantages, use case of IOMT. So that we gaining elaborate knowledge about the internet of medical things.

KEYWORDS: IOT, IOMT, Architecture of IOMT, IOMT in smart E-Healthcare

INTRODUCTION
The internet of medical things is migrated with the medical sectors. The internet of medical things does their functions with the medical devices along with huge co-operation of internet of things (IOT). Each medical devices will be connected and monitored over the internet via healthcare professionals. It was highly embedded with sensors combined with smart wearables, it monitors the patients and it give the appropriate status to prevent the human being's life and the sensors (devices) are fixed smart wearables. Those sensors devices collect the patients' vitals (health status) and those data will send through the internet of medical things applications through the internet and also that information received to the healthcare experts and medical staffs, doctors and particular concern persons etc. Then the patients also get back the needed information at anytime and anywhere. In covid-19 (corona virus) pandemic IOMT was spread widely, the patients who are lived in unreachable areas like physically being in long distance, through internet of medical things (IOMT) healthcare professionals are easy to handle and operate the patients without any movement. Sustainable development goals (SDG). Sustainable development goals (SDG) by 2023 was approved by UN (united nations) in 2015. The main motive of sustainable development goal is "GOOD HEALTH AND WELL BEING ", Currently the internet of medical things fulfills the goal of SDG (sustainable development goals) SDG-Good health and Well-being. This paper provide an elaborate overview and it is widely describing of the internet of medical things.

INTERNET OF THINGS
The IOT (internet of things) is the network of some physical objects. That the physical objects have certain capabilities, do not specialize all the things are internet of things. That are embedded with the various technologies used to communicate and sense or interact with the environment both internally

and externally, it was the small definition of the internet of things. The internet of things can take a huge base role of the internet of medical things.
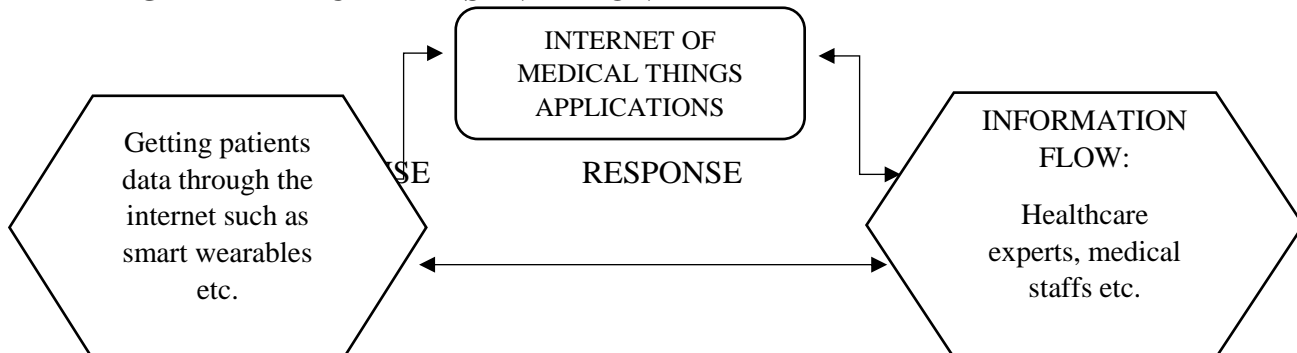
DIAGRAMMATIC REPRESENTATION
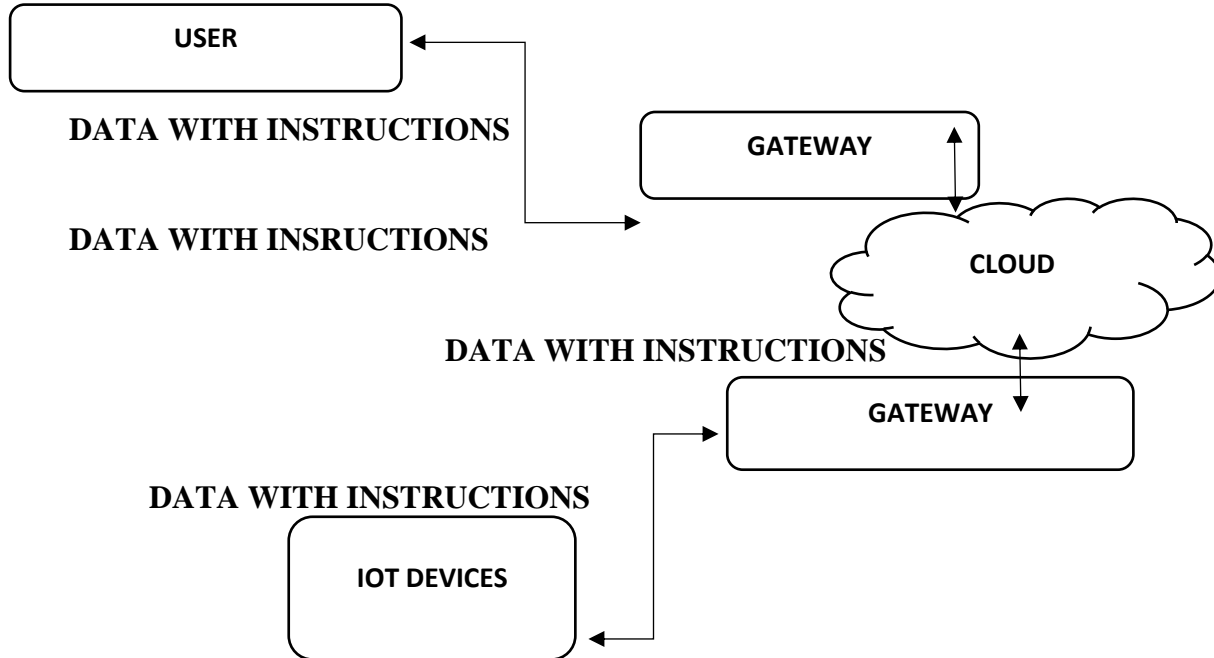
DEFINITION FOR INTERNET OF MEDICAL THINGS (IOMT)
The internet of medical things (IOMT) was interconnected with the medical devices, hardware infrastructure and software applications through the network. It will used to connect with the healthcare information technology. Sometimes it was described as internet of things (IOT) in healthcare. The internet of medical things allows wireless and remote devices to communicate securely via the internet to allow the faster and flexible analysis of medical information and data of internet of medical things. It targets to focus on the medical sectors in the marketing world. The medical devices such as internet connected factory equipment, biometric cybersecurity scanners and autonomous faming equipment. The internet of medical things mainly focuses on the healthcare and medical applications and also it given the sensitivity and strict protocols to healthcare data to avoid the illegal issues. The internet of medical things impacting healthcare such as In-Home internet of medical things, On-Body internet of medical things, In-Hospital internet of medical things and Community internet of medical things.

DIAGRAMMATIC REPRESENTATION

ARCHITECTURE OF INTERNET OF MEDICAL THINGS (IOMT)
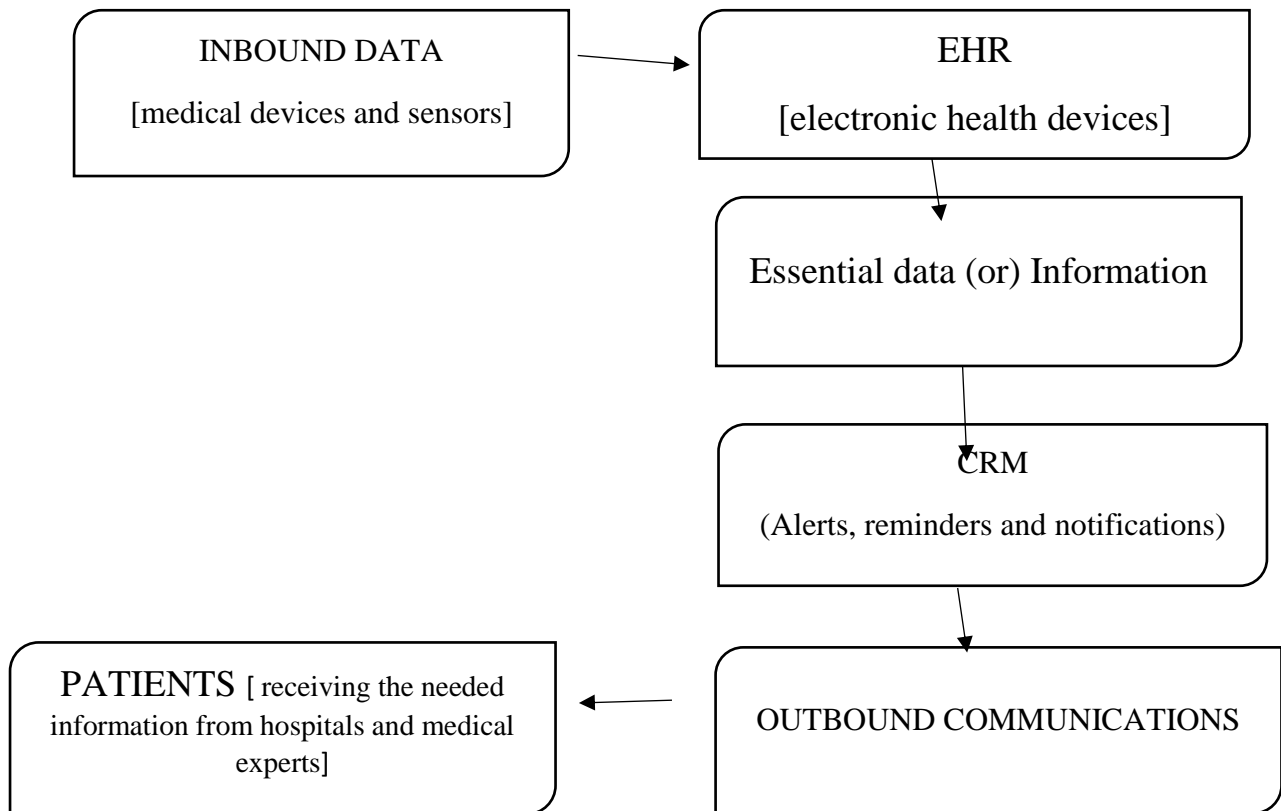**DIAGRAMMATIC REPRESENTATION**
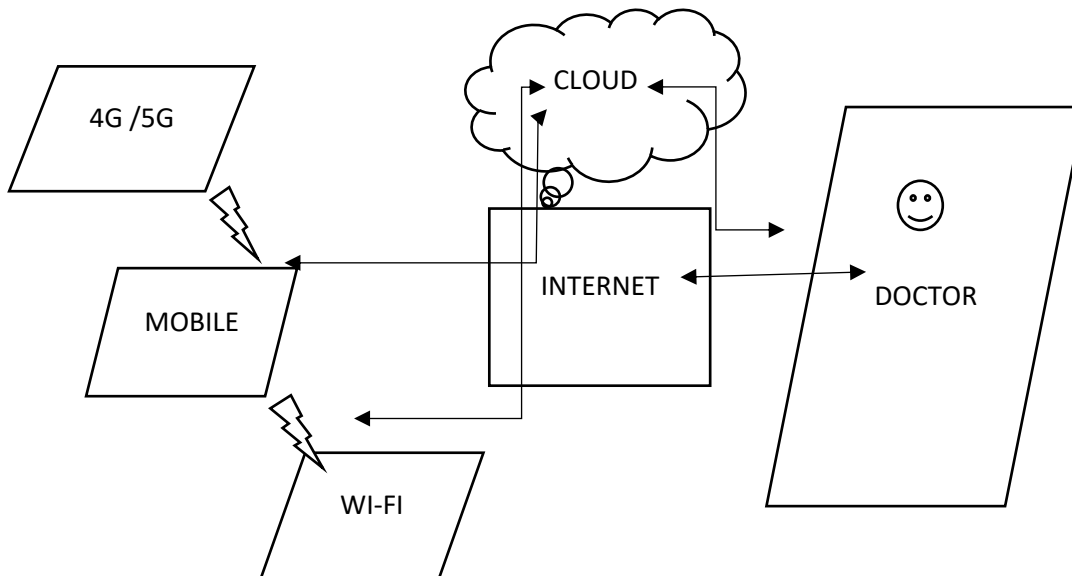
- o Internet of medical things based on enable with the development of internet of things-based healthcare system for monitoring various kinds of various signs such as ECG, heart rate and blood pressure.
- o The key aspect in internet of medical things enabled healthcare system to improve peoples and patients' quality of life.
- o The internet of medical things giving the patients to have an opportunity to walk around medical and non-medical environment and guaranteeing the continuous health monitor and health status without any disturbances.
- o The main component of internet of medical things is rich set of internets of medical things enabled device that extracted one individual physical wellness and also it gathers their physical status by digital method.

SMART E- HEALTHCARE

In smart e-healthcare, hospitals are upgraded and that are built on "SMART HOSPITALS "and optimized modules these are made by the artificial intelligence (AI) and Machine learning (ML) on the ICT (information and communication technology) infrastructure to developing the patient health and new features. There are so many applications of smart hospitals such as Telemedicine, Telehealth, Remote robot surgery. The telemedicine is used to provide clinical care at distance location patients. The remote robot surgery can function by the robots perform surgery through instruction from the doctor. The information is getting from long distance also. The smart e-healthcare system which interrelated data from various sources. It was initially collected and then sent to the EHR (electronic health records). The collected data are in the form of unstructured, the unstructured data converted in structured form with the help of sensors. Then it goes with CRM (customer relational management) system. CRM will have tools to analysing the collected data. Then the processed data generates further trigger ecosystem and the patients are receiving the appropriate information from the hospitals and health experts. The doctors and medical staffs are getting their notifications from the CRM software in the ecosystem.
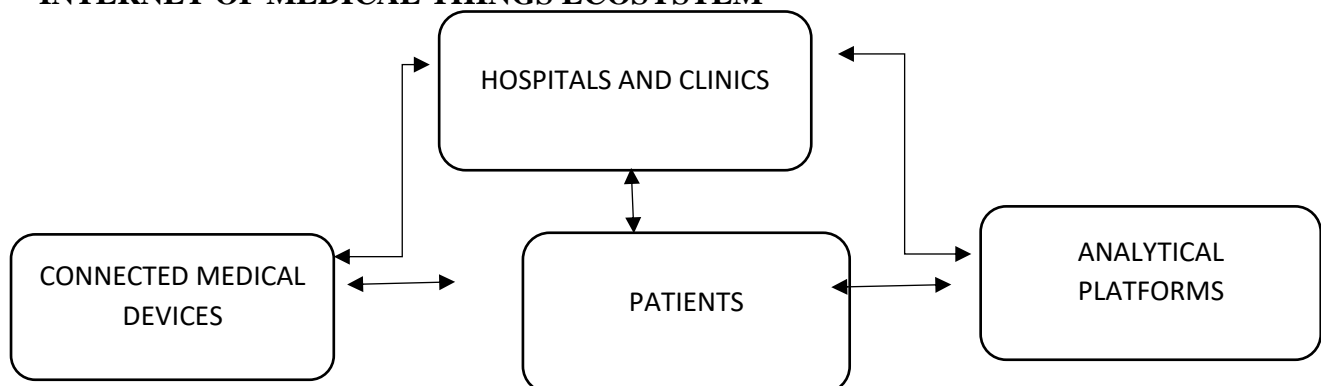
Diagrammatic Representation

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┌─────────────────────────┐        ┌─────────────────────────────┐
│    INBOUND DATA         │───────▶│         EHR                 │
│                         │        │                             │
│ [medical devices and    │        │ [electronic health devices] │
│  sensors]               │        │                             │
└─────────────────────────┘        └─────────────────────────────┘
                                                 │
                                                 ▼
                                   ┌─────────────────────────────┐
                                   │                             │
                                   │ Essential data (or)         │
                                   │ Information                 │
                                   │                             │
                                   └─────────────────────────────┘
                                                 │
                                                 ▼
                                   ┌─────────────────────────────┐
                                   │          CRM                │
                                   │                             │
                                   │ (Alerts, reminders and      │
                                   │  notifications)             │
                                   └─────────────────────────────┘
                                                 │
                                                 ▼
┌─────────────────────────┐        ┌─────────────────────────────┐
│ PATIENTS [ receiving    │◀───────│                             │
│ the needed information  │        │ OUTBOUND COMMUNICATIONS     │
│ from hospitals and      │        │                             │
│ medical experts]        │        │                             │
└─────────────────────────┘        └─────────────────────────────┘
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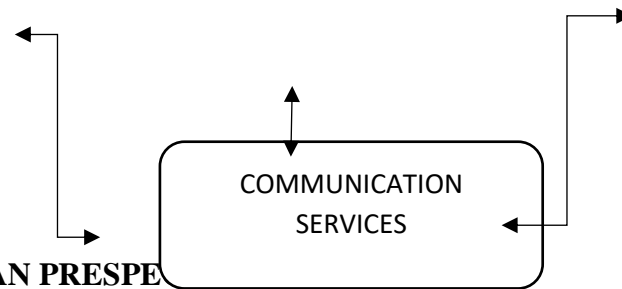**CHALLENGES IN MEDICAL DOMAIN**
  ➢ Volume of data
  ➢ Performance
  ➢ Flexibility
  ➢ CPU capacity
  ➢ Evolution of application and data privacy

BENEFITS IN MEDICAL DOMAIN
  ➢ Make life more convenient
  ➢ Healthcare is cheap
  ➢ Life quality is improved
  ➢ Simplicity
  ➢ Affordability and easy to use

INTERNET OF MEDICAL THINGS ECOSYSTEM

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                          ┌──────────────────────┐
              ┌──────────▶│ HOSPITALS AND CLINICS │◀──────────┐
              │           └──────────────────────┘           │
              │                      ▲                        │
              │                      │                        │
              │                      ▼                        │
┌─────────────────────┐   ┌──────────────────┐   ┌──────────────────────┐
│ CONNECTED MEDICAL   │◀─▶│    PATIENTS       │──▶│   ANALYTICAL         │
│ DEVICES             │   │                  │   │   PLATFORMS          │
└─────────────────────┘   └──────────────────┘   └──────────────────────┘
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                    ┌─────────────────────┐
                    │    COMMUNICATION    │
                    │      SERVICES       │
                    └─────────────────────┘
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IOMT FROM HUMAN PRESPE

Healthcare field and medical fields are more complicated fields in the world. The internet of medical things main theme was an transforming the physical healthcare into virtual healthcare. Internet of medical thing is the basis of getting the solution of our health or humans health. Human are the end users of the internet of medical things systems or application are active and dynamic interconnection one with humans. Human involvement as the perspective component is the emergence of CYBER PHYSICAL HUMAN SYSTEM [CPHSs]. The cyber physical human system is designed typically. Cyber physical human system was implemented and operated based human perspective. The cyber physical human system is used to monitor the human activities. Cyber physical human system components are also giving the great support to the humans and its helpful to make internet of medical things is a user friendly one. These are the major things discussed about internet of medical things from human perspective.

CONCLUSION

In this paper, we provided an overview and specialization role of internet of medical things and it's related to internet of things services and technologies in healthcare. There are a greater number of research challenges are identified. The internet of medical things is a better expecting researcher in upcoming days or future. The most relevant internet of medical things fields has been presented and number of uses in researches are identified. we hope that this work was very helpful and understandable researchers and practitioners and also medical stream and information technology stream peoples. This article has filled with more information related to internet of medical things and it was useful for all stream specialised peoples and also all types of peoples.

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