MINOR PROJECT-1

- **GROUP ID:** C5
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➢ **TITLE:** IOT BASED HEALTH MONITORING SYSTEM

ABSTRACT

- IoT in healthcare is the key player in providing better medical facilities to the patients and facilitates the doctors and hospitals as well. The proposed system here consists of various medical devices such as sensors and application based which communicate via network connected devices and helps to monitor and record patients' health data and medical information.
- The system would be smart to intimate the patient's family members and their doctor about the patient's current health status and full medical information in case any medical emergency arises.
- The proposed outcome of the project is to give proper and efficient medical services to patients by connecting and collecting data information through health status monitors which would include patient's heart rate, blood pressure and sends an emergency alert to patient's doctor with his current status and full medical information.

REASONS BEHIND DEVELOPING THIS PROJECT

1) Facilities related to healthcare in rural areas are very limited.
2) Due to lack of proper management of data enables issues in health care system.
3) The required Doctor-Patient ratio 1:1000 which is not yet achieved.
4) It becomes very expensive for a common man to afford daily health check-up of his health.
5) Our system reduces time with safely handled equipment.

INTRODUCTION

In IOT there are many devices are connected to each other for communication purpose it shares the data, information and able to produce new information and record it for future purpose. Everyday people require new devices, new technology for make his life easy. The research is always trying to think on new devices for make his life easy. In our day to day life we are facing many problems related to our health because we are not caring about ourself. So, to reduce these problems we are introduced a IOT Based health monitoring system .

Nowadays IoT plays an important role not only in communication, but also in monitoring, recording, storage and display. Hence the latest trend in Healthcare communication method using IoT is adapted. Monitored on a continual basis, aggregated and effectively analyzed-such information can bring about a massive positive transformation in the field of healthcare.

Health is a fundamental element of people's need for a better life. Unfortunately, the global health problem has created a dilemma because of certain factors, such as poor health services, the presence of large gaps between rural and urban areas, physicians, and nurses unavailability during the hardest time.

LITERATURE SURVEY

- Recently advancement in MEMS (Micro Electro Mechanical Systems have opened great opportunities for the implementation of smart environments.
- In this field, among the several research activities already presented in the literature, those related on the use of the UHF RFID technology are mainly focused on tracking patients in hospitals and nursing institutes.
- RFID tags can operate only under the reader coverage region, hence the use of UHF RFID technology is limited to patient/devices monitoring and tracking in small environments.
- Another set of related work proposes the use of WSN [Wireless sensor network] technology to implement solutions able to meet the specific requirements of pervasive healthcare applications.
- In a WSN providing patient localization, tracking, and monitoring services within hospital is presented.

METHODOLOGY

- Our system will predict if the patient is suffering from any chronic disorder or disease using the various health parameter and various other symptoms obtained by the system.
- In level-1, Unprocessed data from various IoT devices is obtained and stored on the server and send using the application. These devices include various sensors such as temperature sensor, vibration sensor, BP sensor and pulse sensor.
- In level-2, the relevant information is obtained as a result from the data stored by filtering, classifying and categorizing it. This information is nothing but the patient's real-time health data and symptoms that the patient has. This information will be further used in the next level to predict if the patient is suffering from any kind of disease. This helps to make the system smart and efficient.
- In level-3, we can infer the disease or disorder by using the existing knowledge base and categorize the result in various categories such as Ideal, Normal, and With Symptoms etc.

GAPS IDENTIFICATION

- In existing system Patient and environment monitoring would be considered as an individual application system in healthcare automation environment. Integration of both environment and patient monitoring does not exist.
- Doctor has to generate the patient report in a hospital only. In case of any emergency the doctor at any circumstances must be in hospital to generate a prescription. If a doctor is in some other location apart from hospital then doctor may send report via messages or by call which may lead to conflicts. So a mobile based application of a patient is mandatory to the doctor, so that a doctor can provide prescription from any place.
- Each patient will be able to track their records whenever they want through the app and their data will be secure in the database.

FUTURE SCOPE

- The system can be further improved further by adding artificial intelligence system components to facilitate the doctors and the patients. The data, consisting medical history of many patients' parameters and corresponding results, can be explored using data mining, in search of consistent patterns and systematic relationships in the disease. For instance, if a patient's health parameters are changing in the same pattern as those of a previous patient in the database, the consequences can also be estimated. If the similar patterns are found repeatedly, it would be easier for the doctors and to find remedy for the problem.
- The proposed system can be set-up in the hospitals and massive amount of data can be obtained and stored in the online database.
- The system can also benefit nurses and doctors in situations of epidemics or crises as raw medical data can be analyzed in a short time. The developed prototype is very simple to design and use. The system is very useful in the case of infectious disease like a novel coronavirus (COVID-19) treatment.