Project Title: Real time decision making using Internet of Things in healthcare

Project Summary

Internet of Things (IoT) is one of the disruptive technologies that helps in data collection and further make inferences based on data collected. IoT can be used in numerous applications like agriculture, forest monitoring, military. Investigator noticed that current health monitoring is manual and is done after few days. The health care monitoring market is emerging as trillion dollar industry worldwide, which may increase by double in the coming years. To manage this huge growth some new information technologies are required to reach the two goals, to reduce cost and maintain the quality of service at same time in health care services and medical care using IoT aims at monitoring the body's physiological state, keep record and monitor doctors and patients inside the hospital. Doctors make use of sensor networks to monitor the patient's condition using special-purpose sensor motes fixed inside the body like heart rate and monitoring blood pressure. Major challenge faced by these networks is energy efficiency, because it is near to impossible to replace the motes and real time transmission of data.

Following are the gaps identified from the literature survey carried out:

- The existing manual systems for health monitoring are not efficient in terms of time taken for immediate actions.
- Some IoT based healthcare solutions are proposed but they still lack the data consistency among the patients and the doctor.
- The available solutions are still lacking real time decisions and have a time delay factor.
- Moreover, the effectiveness of the existing protocol can be still improved in terms of high packet delivery ratio, and average latency

Therefore, the investigators will make the use of IoT in healthcare for real time monitoring and alert generation in events of unusual activity detected. These networks are self-organized and energy efficient without any need of physical infrastructure that will provide real time monitoring of the patients to improve the quality of care and will also reduce the workload of the nursing staff. To implement this, different types of sensors like temperature, pulse, heart beat are required. Investigators will work on a novel and secure data sharing mechanism. The

central controller will make the decisions based on data collected. In event of any discrepancy like high temperature or change in blood pressure, an alert is generated at patient as well as to doctor. This will help in remote situation handling by giving some real time prescription to patients by doctor.

Keywords

IoT, Healthcare, real time monitoring, Decision making

Objectives of Project

1) To make use of different sensors for collecting real time health status of patients.

2) To propose a secure method for sharing the data to the server.

3) To make real time decision in event of unusual health conditions and generate alert to the doctor.

4) To provide connectivity among the patient and doctor for better diagnosis and prescription.

Expected output and outcome of the proposal

1) Data collection related to different health parameters of patients will be conducted using sensors.

2) Server will fetch data on real time basis, in event of any unusual activity, data mining techniques are used to make real time decisions whether the situation of patient is under control or not.

3) An alarm to doctor is raised in case of emergency

Budget (Research Personnel, Consumables, Travel, Equipment, Contingency, Overheads)

ITEM	BUDGET		TOTAL
	1st Year	2nd Year	(In Rupees)
Research Personnel	80,000	80,000	1,60,000
Contingency costs	1,000	1,000	2,000
Consumable	Nil	Nil	Nil
Equipment	60,000	60,000	1,20,000
Travel	9,000	9,000	18,000
Total	1,50,000	1,50,000	3,00,000