

E HEALTH GLOVE USING IOT

Ms.Ramya Devi ¹, Sri Bargavi v ², Yuvarani v ³

¹ Assistant Professor department of CSE S.A.Engineering college.

^{2,3} Students of B.E.Computer Science and Engineering S.A.Engineering College.
ramyadevik@saec.ac.in

Abstract :

Today, the implementation of new health services for the elderly has become a serious need. There have been distinct health challenges in society through health-related technical innovation. Most elderly people today experience loneliness and psychological depression either because they live alone or because of reduced relationships with their families. We have proposed an IoT (Internet of Things) based healthcare system to integrate various technologies of wearable devices, sensors and wireless sensor networks to provide intensive service to improve the quality of services in the elderly healthcare system. This method would support the real-time activity and monitor elderly citizens ' health status. The information collected by various wearable devices in real time will be stored in the purpose-based system in the central database, which connects people, doctors and ambulances in an emergency to obtain the right information. This means that the system can improve accessibility, efficiency and also reduce health costs in order to improve the comfort, safety and management of daily routines for the elderly.

Introduction:

In addition to the developments in hospital equipment and pharmaceuticals, new catalysts for technological innovations such as the Internet have become a viable platform for the elderly. Connectivity and

communication gaps are superfluously bridged through these creative applications. The IoT (Internet of Things) is a technology of the next generation that connects unique smart objects and sensors based on the Internet's backbone. They are connected in an advanced way and can go beyond the interactions between machine and machine. The elderly healthcare system can be advanced with this automation. Global health services are facing challenges due to the rapid growth of the elderly population, so a creative way is needed to meet this challenge due to the recent development of electronics and many devices have been developed that can monitor the health record of patients in real time and can be monitored remotely via the Internet.

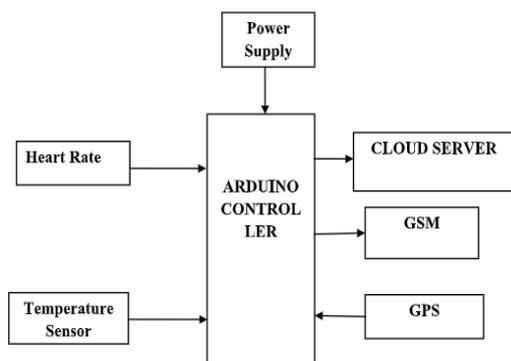
The IoT enabled monitoring devices have RFID (Radio Frequency Identification) associated with it. The aim of the project is to continually monitor the heart beats and temperature of the user who has the heart beat sensor and temperature sensor in place. If the heartbeat or temperature exceeds or eludes the specific limit, the system sends a message to the family member and doctor in the database of users.

Literature Survey:

Heart beats are very important for the health of human or we say patient. The quality of the service is enhanced by using IOT. Increases the accessibility, efficiency and improves safety and comfort. It is used to provide early treatment and detect the danger signs. It is cost efficient and provides high security. Using RFID these devices

can be accessed over the internet at anytime. The length of hospital stay is minimized and the physicians can monitor patients online. The wearable medical devices is used to improve the quality of diagnosis and treatment for range of medical conditions. The wearable device comes with extreme sizes and power constraints and security solution such as cryptography. This is based on medical security monitor that snoops all communication to/from medical devices. It is an effective method for enhancing the security of existing medical devices they are already deployed or upcoming products cannot be easily modified.

Implementation:



In this project we are using arduino micro controller to develop IoT based application. For elderly persons, Help to You (H2U) is developed that measures heart beats and blood pressure of the person is measured continuously. Pressure sensor measures the pressure and Systolic and diastolic pressure is calculated. The heart beats are measured by Heart beat sensor. If heart beats or Blood pressure become abnormal, SMS is sent

to doctors or family members along with current location of that person. Location is tracked by using GPS modem. Buzzer also sounds at that time. The parameters of the person are displayed on the webpage that can be accessed from anywhere.



Heart beat sensor:

Heart beats are very important for the health of human or we can say patient. Heartbeat sensor works on a principle that blood in the human body pumps with every heartbeat. We have used a LDR and Red LED. Patient needs to place her/his finger between these two components. Red light will reflect from patient's finger to LDR. And blood will pump with every heartbeat. This causes fluctuations in the light intensity. Heart beat sensor used in this system works on the above principle. It gives high pulses with every heartbeat. It works on pure 5 volt DC.

Temperature sensor:

Temperature is the body's degree of heat, which is a measure of the body's heat content. The problem of quantifying the body's heat content on a scale did not arise until the steam engine was invented. One of the first references to 'temperature' dates back to 1760, when Joseph Black stated that different temperatures resulted from the same heat applied to different materials. Years of rigorous scientific study have led to many theories ranging from the simple concept of caloric, which treated heat as a material substance exchanged between materials, to Carnot's description of heat as a form of energy.

Advantages:

- [Utilizing a heart rate monitor for any activity gives you definitive data](#) on what effort level it takes you as an individual to accomplish a given task as well as under what circumstances.
- A heart rate monitor is a fantastic tool giving you clear indication and evaluation of the condition of your cardiovascular system during physical activity.
- Using heart rate monitor can be your personal coach. Your heart rate along with your "perceived exertion rate" can tell you if you need to up your intensity, pull back and or tell you that you are in your groove.
- Indicates your heart's ability to "recover" from a given exercise and or interval within a workout once again giving you more info on the condition of your cardiovascular system. Faster recovery rate indicates enhanced cardiovascular capacity.

Conclusion:

IoT H2U health care system predictive analytics can provide early treatment and detect signs of danger early in order to prevent hospitalization. The length of hospital stay is minimized and patients can be connected and monitored by the doctor and nurses based on the report generated by the patient's real-time sensors and clinical updates on the database server. It will also help the patient to intervene from any concerns that will hopefully prevent problems when they stay alone at home. Interaction via the IoT system is quite cost-effective and guarantees a higher level of communication security.

Future work:

The Future work of the project is very essential in order to make the design system more advanced. In the

designed system the enhancement would be connecting more sensors to internet which measures various other health parameters and would be beneficial for patient monitoring i.e. connecting all the objects to internet for quick and easy access. Establishing a Wi-Fi mesh type network to increase in the communication range.

References:

1. Mohammad Pourhomayoun, Nabil Alshurafa, Foad Dabiri, Ehsan Ardestani, Ahsan Samiee, Hassan Ghasemzadeh, Majid Sarrafzadeh, "Why Do We Need a Remote Human-Health Monitoring System? A Study on Predictive Analytics for Heart Failure Patients", JOMS, June 2011a.
2. Ananda Mohon Ghosh, Debashish Halder, SK Alamgir Hossain, "Remote Human-Health monitoring System through IoT", 2016 5th International Conference on Informatics, Electronics and Vision (ICIEV).
3. Mohammad Wajih Alam¹, Tanin Sultana² and Mohammad Sami Alam³, "A Heartbeat and Temperature Measuring System for Remote Human-Health monitoring using Wireless Body Area Network", International Journal of Bio-Science and BioTechnology Vol.8, No.1 (2016), pp.171-190.
4. S.M.R. Islam, D. Kwak, MD.H Kabir, M. Hossain and K-S Kwaki, "The Internet of things for health care: a comprehensive survey," IEEE Acces, vol. 3, pp.678-708, Jun. 2015.
5. M. Kumar, "Security issues and privacy concerns in the implementation of wireless body area network," in Proc. of Int. Conf. on Information Technology, Bhubaneswar, Odisha, India, pp.58-62, Dec. 2014.