Literature Survey

Team members:-

1) Chrysolite Joy S - 110719106005
2) Jeevana A.L – 110719106009
3) Devipriya P - 110719106006
4) Sruthi Gnana Priya D - 110719106033
5) Karthika M – 110719106010

1) Kumar, M.P. and Nelakuditi, U.R., 2019, December. IoT and I2C protocol based Mhealth medication assistive system for elderly people. In 2019 IEEE 16th India Council International Conference (INDICON) (pp. 1-4). IEEE.

IoT based Medication Assistive System was proposed and developed to facilitate medication adherence. The proposed system incorporates features such as sending a message to a medical practitioner one week ahead to remind the status of medicines and also buzzer beep to ensure the attendance of a candidate which is not available in existing software remainders. It can perform the task even though internet is not available physically by using NodeMCU and Blyank app. The proposed system assists older people in reminding medication timings as well as selection of medicines. It also reduces the dependency of old people on younger generations. Design can be realized at a lower price due to the availability of intelligent programmable hardware at an affordable cost.

Advantages:-

Medication assistive system for elderly people was implemented in a cost effective manner using Aurdino, RTC, EEPROM etc, which helps them in a better way in their medication process. It facilitates in reminding timings, taking proper medicines for a specific slot, and also obtaining medicines from medical shop automatically. They can even read the status from time to time. This system is very helpful for independently living older people. It is thoroughly tested and accuracy observed is 97%.

2) Amin, R., Saha, T.S., Hassan, M.F.B., Anjum, M. and Tahmid, M.I., 2020, November. IoT Based Medical Assistant for Efficient Monitoring of Patients in Response to COVID-19. In 2020 2nd International Conference on

Advanced Information and Communication Technology (ICAICT) (pp. 83-87). IEEE.

The researchers had developed a complete model of monitoring patients at regular intervals through an interconnected network among the doctors, nurses and patients with a view to minimizing the workload of the doctors and nurses, reducing the chances of medical professionals being infected by COVID-19 type of contagious disease and increasing the overall efficiency of patient monitoring in hospitals. Bio-medical sensors interfaced with microcontroller are used to collect the data of heart beat rate, body temperature and body movement to get an overview of the present health condition of the patient. The recorded data are stored in an excel file and updated automatically to the internet via OneDrive in every 30 seconds. In case of any large deviation from the normal condition, an automated alarm system will notify the assigned doctor about the condition of the patient. A medication reminder system is added in our designed android app to notify the patient to take the medicine prescribed by the doctor at proper time. The patient can also call the nurse in case of emergency and there is also scope for the patient to control the position of the bed according to his comfort. The level of saline or blood injected into the vein of the patient can also be monitored in our system to inform the nurse at the time of being finished.

3) Kumar, S.B., Goh, W.W. and Balakrishnan, S., 2018, October. Smart medicine reminder device for the elderly. In 2018 Fourth international conference on advances in computing, communication & automation (ICACCA) (pp. 1-6). IEEE.

This paper discusses in detail a proposed IoTBased Smart Medicine Reminder Device that will be designed for the elderly based on the issues faced by the elderly. The paper explains the background of the study and the main aim is to ensure that the IoT-Based Smart Medicine Reminder Device will be solving problems faced by the elderly. The issues that have been identified are targeted very much to the elderly and are aimed to solve the issues faced by the elderly on a daily basis, especially with the consumption of medicine. The paper will also explore the similar implemented devices/systems to identify strengths and weaknesses of other relevant devices/systems so that a better device can be developed.

Advantages:-

- Keep track of their medication.
- consumption patterns, receive reminders to.
- consume their medications
- Pill restock alert will alert close contacts
- Added level of security
- Multiple methods of reminding use.

Limitations:-

- Lack of health apps integration
- Absence of voice reminder
- Not cross-platform
- Absence of self-deployed cellular connection

4) ***Sharma, A., Choudhury, T. and Kumar, P., 2018, June. Health monitoring & management using IoT devices in a cloud based framework. In 2018 international conference on advances in computing and communication engineering (ICACCE) (pp. 219-224). IEEE.***

The study proposed Textile based Wearable System Technology, Unobtrusive Biosensors, Intelligent Medical Boxes, and a Cloud Computing Architectural Framework amongst other technologies and advancement that would pitch the HealthCare Industry to unparalleled heights in terms of efficiency and Patient Comfort. The paper proposes to revolutionize the industry by real time exchange of data to seamlessly and proactively offer prediction, diagnosis and remedies. The framework this paper proposes is aptly called the Internet of Medical Things (IoMT) which opens a whole new avenue for the Patient-HealthCare provider Interface (PHI) and Wearable Health Technology (WHT).

Advantage:-

An alert is sent to emergency contacts and respective healthcare providers in case the Health Indexes exceed the normal values thereby leading

to better prognosis thus preventing the illness before it takes an extreme form. Real Time Data is being provided to the hospice care specialists which enables them to make informed decisions and provide prediction-based remedies.

But the limitations related to this study are Security and Data Theft is an issue which persists even after the inclusion of the unique API key. Also, for more patients, big data handling might be required to handle the enormous amount of data that is generated. For IoMT to become commercially and publicly available, a more user-friendly UI is desirable.

5) ***Alkandari, A. and Almutairi, N., 2019. Smart medicine drawers using IOS application and Arduino board. International Journal on Perceptive and Cognitive Computing, 5(2), pp.59-65.***

This paper proposed an application running on the iPhone connecting with smart drawers through the Arduino Board. The primary purpose of this application is to organize and remind patients to take their medicines on the accurate time. Drawers can be opened and closed through the application. Advantage It reduces workload of doctor and nurses. Very handy for elder peoples

6) ***Al-Mahmud, O., Khan, K., Roy, R. and Alamgir, F.M., 2020, June. Internet of things (IoT) based smart health care medical box for elderly people. In 2020 International Conference for Emerging Technology (INCET) (pp. 1-6). IEEE.***

The proposed medicine box helps the patient to take the right medicine at the right time along with an email which will help the patient to take the medicine. A laptop is used as a server where detailed information about doctor and patient are stored along with prescription and appointment date. Both doctor and patient have IDs' and password for accessing the server. Also, the data of medication and temperature of patient are stored on the server for doctor's ease. The Doctor can change the patient's prescription if necessary, which will also be notified via email. Moreover, the doctor can take immediate steps in case of an emergency. Older people who need regular monitoring of their medication will be benefited through this project. Server for storing medication time and other information, mail transferring protocol, temperature sensor for proper monitoring of patient body temperature has been integrated in this project.

7) ***Bhatia, H., Panda, S.N. and Nagpal, D., 2020, June. Internet of Things and its Applications in Healthcare-A Survey. In 2020 8th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions)(ICRITO) (pp. 305-310). IEEE.***

The paper also presents a comparison between various sensors used in the field of healthcare and their types, the IoT architecture, tools and technologies used to develop IoT systems, and m-Health apps. The objective of the paper is to clarify the concept of IoT to the reader and to make the reader aware of the present trends used in IoT healthcare. Basic Three-level architecture and Five-level architecture for IoT based systems have also been discussed. The commonly used sensors in IoT-enabled or IoTbased healthcare systems have also been discussed. Then, the various tools and technologies used in the development of IoT systems such as hardware platforms like Arduino, Raspberry Pi, Intel's Galileo, BeagleBone, etc. have also been discussed. In the end, various m-health healthcare applications that are available for use to the general public based on IoT have been discussed.

8) ***Lu, D. and Liu, T., 2011, December. The application of IOT in medical system. In 2011 IEEE International Symposium on IT in Medicine and Education (Vol. 1, pp. 272-275). IEEE.***

The study defines concepts of IOT (the internet of things),including the structure of IOT and the implementations of IOT functions .It also introduces the telemedicine ,including the advantages of telemedicine and the telemedicine in China . And the paper illustrates the technologies of IOT used in medical system. The application of IOT in medical system includes clinical care is in-need of the information management in hospital are as follows: identification, sample identification, medical record identification. Using the RFID technology, the doctor can take the bedside sample easily. They can identify the patient's identification; if there are some errors the alert will call the doctor automatically. Secondly, Remote real-time ECG monitoring Mobile communications technology from the current 2.5- generation CDMA and GPRS to the third generation mobile communications development, with the 3G communication technology and promote the use of increasingly sophisticated, 3G mobile communication technology in cardiovascular. Remote areas of health care play a huge role.