PERSONAL ASSISTANCE FOR SENIORS WHO ARE SELF-RELIANT

IBM – LITERATURE SURVEY

UNDER THE GUIDANCE OF

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STATEMENT:

- The study proposed, 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)
- A comprehensive survey of IoT- and IoMT based edge-intelligent smart health care, mainly focusing on journal articles published between 2014 and

2020.The systematic review process PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to identify studies and narrow down results for this review.

- 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. 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.
- 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.

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.

REFERENCE:

1.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 IoT-based 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.

2.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.

3.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

4.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

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• 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

5.Ayshwarya, B. and Velmurugan, R., 2021, March. Intelligent and Safe Medication Box In Health IoT Platform for Medication Monitoring System with Timely Remainders. In 2021 7th International Conference on Advanced Computing and Communication Systems (ICACCS) (Vol. 1, pp. 1828-1831). IEEE.

The intelligent medication box proposed in this work have specialized features including six sub boxes which helps to organize six different pills, provides timely remainders for the patient or caretaker in an android application like hand-held devices like smart phone. This intelligent medication box contains bio-sensor for monitoring of temperature and heartbeat. Over dosage and improper intake of medicines may lead to serious issues in health of elderly people to avoid mis-usage of medicines a simple authentication process either by the care taker or the patient himself is performed. The proposed medication is much safer as it clearly intimates about time, dosage, stock of medicine and sorts out different pills in correct sub boxes during the next fill by caretaker.

6.Kumar, M.P. and Nelakuditi, U.R., 2019, December. IoT and I2C protocol based M-health 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%.

17. A. Sawand, S. Djahel, Z. Zhang, and F. Na. Multidisciplinary Approaches to Achieving Efficient and Trustworthy eHealth Monitoring Systems. Commun. China (ICCC), 2014 IEEE/CIC Int. Conf., pp. 187–192; 2014.

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27. M Shailaja, K Lokeshwaran, S Sheik Faritha Begum, “Smart Medication Pill Box for Blind People with Pulse Sensor”, Vol-8, Issue-1S2, May-2019.

28. L Sangavi, M Vitharcchana, B Sivachalapathy, M Shanmugham, “An Intelligent Pill Box with Reminder Using IOT”, Vol-3, Issue-1, 2018.