

Tablets Monitoring Using Digital Pill For Visually Impaired People.

Nivetha Kumari.M¹, Nagapriyadarshini.B², S.Giridharan³.

¹Assistant Professor, Department of Information Technology, I.F.E.T College of Engineering, Villupuram, India.

²UG Scholar, Department of Information Technology, I.F.E.T College of Engineering, Villupuram, India.

³Assistant Professor, Department of Information Technology, I.F.E.T College of Engineering, Villupuram, India.

Email: ¹nive24it@gmail.com, ²nagapriyadarshinib@gmail.com, ³mailtoogiri@gmail.com.

Abstract: As, we all know there are more than 285 million people were Visually impaired people, among them 110 million are Elders as they may forget the basic fundamental things in their regular day to day life and also there may be a chance taking the Wrong Medicines. To face this problem, we are using the Smart Pill Technology by Human Health or Body Care System Using Internet of Things (IoT). During this paper, we have a tendency to mentioned regarding the technology of home health care system. It's principally targeted on the drugs reminder system. Digital pill is largely a multichannel device used for remote medical specialty measurements victimization small technology. this can be used for the time period measure parameters like carboxylic acid, pH, conduction and dissolved gas. The sensors area unit fictional victimization nonparticulate radiation associate degreeed photolithographic pattern integration and were controlled by an application specific microcircuit (ASIC). This paper proposes a sensible pill with prompt and consumption operate that is employed to present alert the user to require pills at a selected time and also the pills needed to require at that point comes bent the user to avoid confusion among medicines. This Smart Pill will cut back senior family member's responsibility towards giving the right and timely consumption of medicines. This technique Get the feedback regarding pills from the user and Send commercial document to medical look for visually impaired people.

Keywords: Smart Pill or Digital Pill, ASIC, IOT (Internet of Things).

1. INTRODUCTION:

Usually for house based mostly Human Body care the arrangement embraces communication, sensing and laptop interaction technologies that are at designation, and observation patients while not worrying about the standard of life-style. Digital pill is largely a multichannel device used for remote medical specialty measurements victimization small technology. This can be used for the time period measure parameters like carboxylic acid, pH, conduction and dissolved gas. The sensors area unit fictional victimization nonparticulate radiation associates degreeed photolithographic pattern integration also they have an application specific microcircuit (ASIC) to control them. Our paper proposes a sensible

pill with prompt and reminder to operate that is employed and to alert the People to require tablet and medicines at a selected time so all the tablets needed to require at some point comes bent the user to help them in clearing the confusion among medicines. Good tablet box will cut back any of their family member's responsibility at giving the particular medicine at the correct time. This technique has the data and feedback regarding tablets from the person consumed tablet and Send commercial document to any person of their Family look for visually impaired people. The collected data is also stored in the device and sent to a group center which has a whole observation, for each caregivers and patients. via web, from mobile device the access will be allowed to any caregivers.

1.1 *Scope of The Paper*

1. The scope of the Paper is to monitor the health of the visually impaired People.
2. It is used to avoid those Visually impaired people to take wrong Medicines.

1.2 *Literature Survey*

Survey 1

The most elderd Population Country is Taiwan. So, there may be a cause of chronic disease at that country in order to control them they may intake and consume mor medicines daily. The health takers or care givers said them to take care of their elderd people in their family by giving them a tablet on time. Thus, this paper [1] which is designed with the monitoring a patient at its back end and also it has a pillbox. This tablet box helps the people or care giver in their family by giving a reminder that when and how the people should take their medications on time. And, also this prevents the safety measures of tablet consuming by pillbox. It also helps the care giver to give the tablets to their elders on time.

Survey 2

Population aging is a worldwide issue that are caused and affected many developing countries. The chronic disease affects mostly elders are caused by natural changes in our life and all patients who are affected with chronic diseases need to take their medications over a lifelong or a prolonged period of time then only they can able to sustain their lives. Nowadays, the patient intake the proper tablets and medicines at the correct and Proper time becomes very difficult. Thus, this paper [2] proposes a sensible tablet box combined with a camera and also with the drugs bag concept. In order to interact with tablet box and to remind the correct function this bag concept helps a lot and alert the people to take the correct tablets on time

Survey 3

Medication adherence is very important challenge for elder people who are facing with chronic conditions. Technology have a crucial work to play during this chronic condition, with electronic devices also combined with reminder feature and drugs consumed by the people are recording. In this paper [3], a tablet box which is a programmable. This pillbox is connected with an internet application that provides the care provider or caretaker to see. Also, it has a mobile application and that is implemented to determine a reference to the online application that is used to point out medicine daily routine schedule and tablet taking notifications.

Survey 4:

This system is done by Deep learning method [4] by which it helps to find the tablet in taken by the drug recognition device.

1.3 Existing System

- In Existing System (fig1) has a Smart Glasses which is wearable, a drug Pills recognition device, a mobile device Application and a speaker.
- The Existing System done through Deep Learning Technology to find tablets or pills in order to help them intaking a Wrong Medicine.



Fig. 1. Existing System Architecture.

2 WORKING PRINCIPLE

In this Method the smart Pill has two buttons On and OFF button. The ON button is used to activate the digital Pill. The Wi-Fi is used to control the devices and when the button is clicked by the user, the commands that is in build are passed to the Arduino in which the Wifi is fixed connected to the relay switch that will control the electrical devices [6]. The feedback is then Collected and Stored in database. <http://iotclouddata.com/project18/pill42logview.php> website is used to view the tablet consumed by the Particular Person with Date and Time [7]. It is used to avoid taking the wrong medicines especially for Visually impaired People.

1.4 System Architecture

The Two sections namely,
A. Transmitter Section and
B. Receiver Section.

A. Transmitter Section

The Transmitter Section (Fig 2) which consists of Digital Pill with the various Sensor like Valporate Sensor which collects the signals by using ASIC (Application Specific Integrated Circuit).

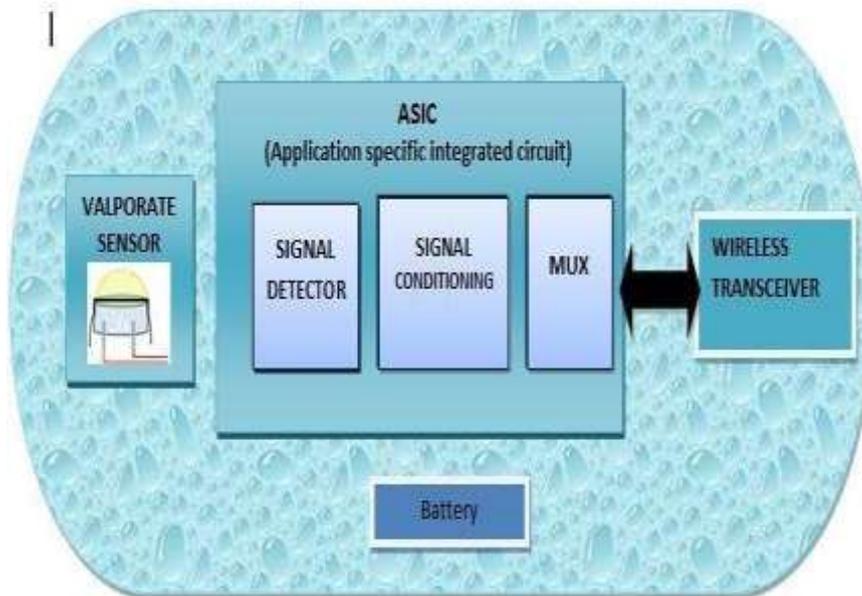


Fig. 2. Transmitter Section

A1. Transmitting Module

The transmitting module is used to transfer the information which was send by the wireless transceiver [8]. The module consists of microcontroller, cloud storage and display. It helps us to display the information about the patient.

A2. Sensing Module

The sensing module is used to sense the data of an patient by using various sensors. Then the information is sent to the wireless transceiver[9]. It is control by Arduino UNO which control all the activities of the sensors.

A3. Signal Conditioning Module

The signal conditioning module is used to convert the Analog signal which is provided by the smart pill into the digital signal [10]. It is used to display the data to the users about the health of the information.

B. Receiver Section

In Receiver Section (fig 3), the Signal Conditioning Module, which get the signals from the sensing module and it converts the Analog signal to Digital signal and then the signals are transmitted through the Wireless Transceiver[5]. And then the PC database stores the data and sends to the user.

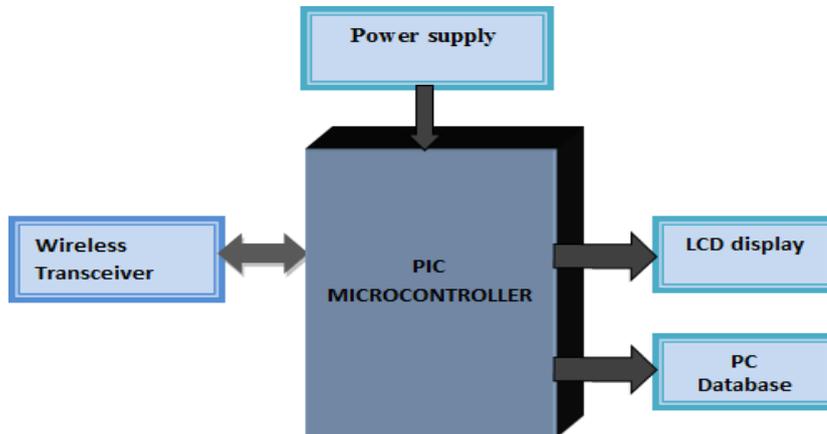


Fig. 3. Receiver Section

B1. Receiver Module

The receiver module is used to receive the data which is send by the transmitter module. It will get all the details about the health of the patient. Also help the users to get infor- mation about their health automatically.

2. Components for Working Model

1.5 Digital Pill

The digital Pill (fig 4), has a on and off button and they also encapsulated with various sensor that helps to find the tablet or Pill.

Fig. 4. Digital Pill



1.6 Arduino

When the on button is pressed by the user in digital Pill are passed to the arduino (fig 5), then the Wireless Transceiver will react according to the commands that is given by the user so that the electrical devices can be controlled automatically.



Fig. 5. Arduino

3. RESULT

Thus, the digital Pill shows the result through the users Mobile Phone by Wi-fi network. As shown in Figure 6, The Patient Relatives or users can get a feedback through their Mobile Phones. The user get a notification through their mobile Phones by Wi- fi.

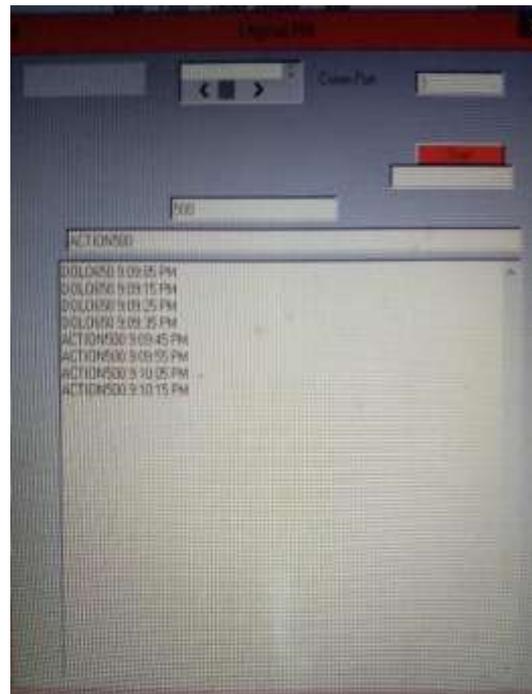


Fig. 6. Notification in User Mobile

4. CONCLUSION

Thus, we have represented that the small electronic pill that helps in recording the data with Date and Time. To improve the prevailing home health care technique range of observance technology has determined that ends up in home health observance system. The observance system will be enforced with detector and wireless module that ought to have to be compelled to secure in order that message containing the health connected info mustn't be corrupt. IOT

(Internet of Things) play an important role in human action the devices, the utilization of electronic communication commonplace and communication protocol we are able to firmly transfer the vital messages concerning to health.

Future Enhancement

In future, the digital pill can be enforced with biomedical technology that it can be used to measure within the gastrointestinal tract through Wireless channel. In additional, this digital Pill can be used to alert the patients like what kind of food the user must take. So, by this we are able to maintain our health.

5. REFERENCES

- [1]. C. Huang H.-Y. Chang Y.-C. Jhu and G.-Y. Chen.: The intelligent pill box-design and implementation. In: IEEE International Conference on Consumer Electronics, (2014).
- [2]. H. Wu et al.: A smart pill box with remind and consumption confirmation functions. In: IEEE 4th Global Conference on Consumer Electronics (GCCE), pp.658-659, Osaka, (2015).
- [3]. B. Abbey et al.: A remotely programmable smart pillbox for enhancing medication adherence. In: 25th IEEE International Symposium on Computer-Based Medical Systems (CBMS), pp. 1-4, Rome (2012).
- [4]. W. Chang et al.: A Deep Learning Based Wearable Medicines Recognition System for Visually Impaired People. In: IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS), pp. 207-208, Hsinchu, Taiwan (2019).
- [5]. G. X. Zhou.: Swallowable or implantable body acetic telemeter - Body acetic radio pill. In: IEEE Fifteenth Ann. Northeast Bioeng. Conference, pp. 165-166, Boston (1989).
- [6]. G. Iddan, G. Meron, A. Glukhovsky and P. Swain.: Wireless capsule endoscopy. vol. 405, no. 6785, pp. 417, May (2000).
- [7]. D. F. Evans, G. Pye, R. Bramley, A. G. Clark, T. J. Dyson and J. D. Hardcastle.: Measurement of gastrointestinal pH profiles in normal ambulant human subjects, Gut, vol.29, no. 8, pp. 1035-1041, (1988).
- [8]. R. H. Colson, B. W. Watson, P. D. Fairclough, J. A. Walker-Smith, C. A. Campell, D. Belamy and S. M. Hinsull.: An accurate, long-term, pH sensitive radio pill for ingestion and implantation. Biotelem. Pat. Mon., vol. 8, no. 4, pp. 213-227, (1981).
- [9]. Pathmanabha Swaroopan , Chinmaya Ranjan Pattanaik, Shiva Shankar reddy , E. Ahila Devi * Sujatha krishnamoorthy "Design and Tuning of Control system for blood Glucose level with artificial pancreas using harmony search Algorithm" .International Journal of Psycho social Rehabilitation ,Volume 24, Issue 10, 1610-1620, DOI:10.37200/IJPR/V24I10/PR300187, MAY 2020.
- [10]. K. Venkatachalam, A. Devipriya, J. Maniraj, M. Sivaram, A. Ambikapathy, Iraj S Amiri, "A Novel Method of motor imagery classification using eeg signal", Journal Artificial Intelligence in Medicine Elsevier, Volume 103, March 2020, 101787