

# IOT Based Medicine Dispenser

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**Abstract-** Today, in our society most families are nuclear. Elderly would prefer to remain independent and their desire for independence in natural, but it is a worry for their children. Automatic Medication dispenser is an approach to help the rural people to take their medicines efficiently for nominal cost. As the cost of in home medical care rises, it has become more and more incumbent among individuals to opt for a device that effectively takes care of their medications. The automatic medicine dispenser serves the purpose.

is given to patients compared with a traditional health care environment, while greatly reducing their burden on caregivers. This greatly increases caregiver efficiency, and effectively increases the patient capacity of the current health care system.

Paper [2] - Automatic Medicine Dispenser.

Author-> Shradha Kadam<sup>1</sup>, Aishwarya Kale<sup>2</sup>, Punam Nimase<sup>3</sup>, Sheela Padwal<sup>4</sup>, Shobhit Khandare<sup>5</sup>.

## I. INTRODUCTION

Degrees of social status are closely linked to health inequalities. Those with poor health tend to fall into poverty and the poor tend to have poor health. According to the World Health Organization, within countries those of lower socioeconomic strata have the worst health outcomes. Health also appears to have a strong social component linking it to education and access to information. In terms of health, poverty includes low income, low education, social exclusion and environmental decay. The poor within most countries are trapped in a cycle in which poverty breeds ill health and ill health leads to poverty.

Through this device suggested in this paper, the elderly population is benefited as it avoids expensive in home medical care. It uses RFID card which is read to detect the unique RFID code of the person. When the code of both the tag matches then the quantities of pills is enquired from the user. After knowing the quantity of pills, the motor driver will drive the two motors as a result pills are dispensed to the user. As all operation is controlled through software, human interfacing is minimized. And therefore maintenance is lowered. It is more accurate and works continuously providing consistency. Requires less space for it to set for any operation at any location. RFID medical cabinets are being used to automate routine tasks allowing health care professionals to spend more time on patient care while simultaneously improving security and safety with the patient care facilities. It fulfills a number of daily needs from providing added security to the patient drug supply to automatic dose recording, patient billing, and replenishment ordering.

## II. RELATED WORK

Paper [1] - An Automated medication self management and monitoring system for independently living patients.

Author -> Corey McCall<sup>1</sup>, Branden Maynes<sup>2</sup>, Cliff C Zou<sup>3</sup>, and Ning J Zhang<sup>4</sup>.

Paper [3] - Robotic Pill Dispenser

Author-> Albert Jaison<sup>1</sup>, Anu Simon<sup>2</sup>, Arun Christin<sup>3</sup>, Neethu John<sup>4</sup>, Nisha Varghese<sup>5</sup>, Yuvraj.V<sup>6</sup>.

This paper provides practical and economical means for ordinary patients to easily manage their own medications, taking the right dosage of medicines at prescribed time in a fully automated way. The patient is alerted in various ways, such as an alarm sound, cell phone or paper text message, or automatic phone call, when it is time to take medicine. It also provides various features like fully automated operation for easy medication by using the built in scale for dosage measurement and a motorized rotation plate to deliver the right medicine container in front of patient, various medication remainder messages for patients and noncompliance alerts for caregivers, and incremental and economical adoption by pharmacies, patients and insurance companies. More attention

In this paper, they have developed a Robotic pill dispenser, as it is very important to take medication on time. Most often people regardless of their age tend to forget their medicines. Timely medication is very much necessary to cure any disease. With the help of this paper, the timely medication problem can be tackled. In this paper, they have selected a project that applies to the pharmaceutical and medical field of engineering, that incorporates the use of mechanical and mechatronic systems. It was decided as an impact when many hospitals experienced low nurse to patients ratios, a robotic

pill dispenser with the ability to distribute multiple pills for certain patient or private individual can allow more attention to be given to patients and elderly to remember when and what dosage of medicine must be given.

#### Paper [4] – Advance Security System

Author-> Aman kumar

This paper provides advance security for ATM, where it uses the technology that is capable of reporting to respective authorities(police) in case of robbery and use methods like spraying gases that make the stealing person unconscious so that they can be taken into custody. It works with many technologies, but basically it has three phases of operating procedures, where the first phase contains the verification of user and valid ATM pin, account number. User swipes the card in the space provided for swiping, the validity of the card is checked and displayed respectively. The second phase deals with scanning the palm and retina after which the person is allowed inside. If the person entered is new user then the data of the person will be saved or if the person is old user, then the database of the profile is matched with the previously saved data. The third phase consists of face recognition after which the person will be allowed for further transactions. In this way the security system of our proposed system can be maintained.

#### Paper [5] – IOT Based ATM Secure Monitoring

Author-> S.Menaga1, Yamili.A2, Rekha.P3, Tamilarasi.R4

This paper is proposed for ATM security, comprising of the modules namely authentication of shutter lock, web enabled control, sensors and camera control. It consists of a person(watchman) and a camera to monitor the system, the recent enhancement mode in the security system for few ATMs is that it is provided with secure entrance door such that to enter inside, the card must be used to unlock the door. With the wide use of internet, this work is focused to implement the internet technology to establish a system which would communicate through internet using IOT. It uses PIC16f877A microcontroller. In this system the gas vibration and temperature sensor is used. Any problem if detected is displayed on the LCD and is informed to the control room for further procedures.

#### Paper [6] – An Automated Medical Machine Enabling Enhanced features for Telemedicine using cloud computing.

Author-> Siva Sangavi.R1, Shwetha Reddy.T2, Madhan Prabhu3, Joshi kumar A.V4

This paper is based on TELEMEDICINE and TELEMETRY. Telemedicine allows patients to consult physicians over video for immediate care or allows captured videos or still images of patients to be sent to physicians for diagnosis and follow up treatment. Telepharmacy technology is used for providing pharmaceutical care to patients at distant places where the pharmacists are not available for direct consultation. In this method, the medicines are provided online and the doctor's prescription is provided in an instant using automated medical machine (AMM). The entire transactions and patients details are saved or stored in the cloud in order to save both memory and cost of the system. the cloud service providers supply data storage on demand to store the health records. Each system will be connected using wired or wireless network for internet accessibility with constant power supply for its operation. It uses two algorithms for the operation. One for user and other for the doctor. Here the user will login with user ID and the password given. After logging in the face and finger print is recognized by the sensor and this information of the user is stored in the virtual server using the cloud computing technology. The recognition is done by electric eye and finger print is sensed using sensor. If all the data is matched, the user can call doctor by choosing "call a doctor" option on touch screen to communicate with the doctor.

#### Paper [7] – Design and Implementation of Automatic Medicine dispensing Machine

Author-> Mahaveer Penna1, Jijesh J J2, Dankan V gowda3, Shivshankar4

In this paper, the medicines are dispensed based on the condition of the user like by the checking the temperature, blood pressure and others. it uses an automatic microcontroller based motor system for dispensing medicines. The system is loaded with the medicines and will be displayed upon the request of the user, the total functioning will be handled by the microcontroller interfaced with the sensor. The information related to the storage of data of the medicine will be sent to the organizer through GSM AT command. Here various sensors are used for checking the heart beat, temperature sensor for checking the body temperature. The sensor working with optical phenomenon with infrared light emitter and photo transistor, the sensor gets functioned by pulling enabling pin high will turn the IR emitter LED on. Output of the sensor passed through RC high pass filter where DC component is removed later followed by low pass filter of the opamp circuit. Stepper motor is controlled by electromagnetic coil making it to rotate to move the medicine in order to place near the vent when a specific medicine is chosen with precise steps of specific step angle.

### III. RESEARCH GAPS

- [1] Limitation of this paper [1] is that it is meant for elderly individuals only, who are unable to take care of themselves whereas our proposed system can be used for each and every individual.
- [2] Limitation of this paper [2] is that the operation of the device is complex and is difficult to understand for any common person whereas our proposed system is operated similar to an ATM machine and hence very simple and understandable.
- [3] Limitation of this paper [3] is that only a single pill is dispensed at a time whereas in our proposed system a sheet of tablets can be dispensed at a time.
- [4] Limitation of this paper [4] is that it requires high speed internet access for its entire operation in order to send the alert messages to the respective authorities. The components used such as palm scanner, retina scanner and the face recognizers are costly. And therefore the entire operation and maintenance is complex.
- [5] The limitation of paper [5] consists of An embedded fingerprint is used as biometric authentication scheme for this system in which the fingerprint can be easily forged whereas in our proposed system, unique RFID card is more secure.
- [6] Limitations of this paper [6] are that it does not explain about the level of security of the information stored in the cloud. Also it does not explain about the capacity of storage of data in the cloud and the data rate whereas in our proposed system we can store the entire data in the cloud with the accurate data rate.
- [7] Limitations of this paper [7] is that there is no usage of IOT (cloud service ) for storing the data safely and securely in large amount whereas in our proposed system we are incorporating the concept of IOT so that the data can be easily stored and accessed.

### IV. CONCLUSION

As pharmacists looking to our future, we must consider services that hold value to the patients and other health professionals. As technology is sure to evolve, pharmacist must look toward quality improvement in patient care services and provide due expertise in medication management, so such technology becomes integrated as fundamental way of pharmacy practice, regardless of setting. In this changing culture of health care and technology, now is an opportune time for pharmacists to drive the expectations of patients and other health professionals about the value of pharmacist services within the patient care continuum.

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