

A Brief Study on Smart Medicine Dispensers

Dayananda P., JSS Academy of Technical Education, Bangalore, India

Amrutha G. Upadhyaya, JSS Academy of Technical Education, Bangalore, India

Nayana B. G., JSS Academy of Technical Education, Bangalore, India

Priyam Poddar, JSS Academy of Technical Education, Bangalore, India

Vandana Rao Emaneni, JSS Academy of Technical Education, Bangalore, India*

ABSTRACT

The article's purpose is to throw light on the presentation of an enhanced idea of the usage of a growing technology of internet of things. The proposed system SPEC 2.0 (smart pill expert system) is used to automate the capability of dispensing the right dosage of medicine pills at the given interval. The proposed system has been designed to be used at your home, your workplace, at hospitals by a user in any age group and then possibly expanding the functionalities to the visually impaired. The system focuses on providing access control and monitoring management through a mobile app with no monthly subscriptions to the service being offered. The user has been given control of the system through the application to help set the time interval for dispensing the medication. There will also be alerts and notifications that are sent if the pills haven't been removed from the final container box. The system is tested, and the results are determined by growing the modules for dispensing the pills at certain predefined time intervals.

KEYWORDS

Expert System, Health, Healthcare IoT, IoT Motorization Service, Medication Monitoring, Medicine Dispenser Application, Smart Medication, Smart Medicine Dispenser

INTRODUCTION

Advancements made in the field of smart healthcare technologies have provided people a better life situation in the present years. This would have been even more notable if the percentage of medication errors could be identified and corrected. Due to this negligence, there has been quite a lot of deaths and quite an enormous increase in the expenditures by millions each passing year. In the present-day scenario, since medical devices are incorporated on a network, due to its security issues, interoperability breaches are increasing in number day by day, resulting in enormous business losses. To curb this very risk, automation and consumer-based technologies are being adopted for the medical devices. Health care is at the heart of IOT, with applications varying from health monitorization to disease prognosis. These applications provide the visualisation of identification, diagnostic study, treatment procedures

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*Corresponding Author

and regular monitoring through the devices that are implanted in IOT. The main achievements are to reduce the cost and easy usage for its users by providing better user experience and easy operational customisation. For seamless connectivity and better performance, a systematic scheduling scheme plays a very important role due to the availability of limited resources. In the healthcare domain, smart devices like a gateway, a server and a database help in creation of data to be sent as medical services to the authorized organisations. In the upcoming years, IOT will play a huge role to address the above issues in the healthcare domain. Through IOT, various countries across the world, have adopted this new turnover in the field of medical health care, by designing and developing new frameworks and applications integrating services and security. The objective is to construct a device that is relatively small and light weight, that is developed as a software in such a way that patients receive their medication reliably and safely as prescribed by their physician. The device also provides alert messages which helps to take medicines in time as well as refilling the medications.

BACKGROUND

(Reddy & Chavan, 2020) (Casciaro et al., 2020) The system SPES provides expertise on the real-time analysis and support to every user relying on medication. Since Medicinal Nonadherence (MNA) is one of the huge factors for extended betterment, money issues, and sudden demises, SPES tries to curb these inconveniences by supporting several users, the option for controlling and monitoring their actions, simultaneously, in order to curb any misleading events. The SPES provides an easy UI and a trouble-free way of maintaining the physical dispenser system with an AI-Chat service that caters to the needs of the user's queries. (Al-haider et al., 2020) The medicine planner provides functionalities to pre-sort a prescription on a daily basis. This is especially catered to the needs of elderly and visually impaired personal to have a better management of their meds. The planner has 2 distinct functionalities of providing a self-filling mechanism and an alert notification mechanism during the time of medicine intake. (Rao et al., 2020) The kit proposed can be programmed to provide a proposition to guide users to consume their correct medicine at the exact specified time interval through the employment of an alert functionality, buzzers and LED. This is a small grant to improve life existence for a better healthy future for the world. (Mahmud et al., 2020) This IOT based intelligent medicine container houses several sensors and servers for frequent health monitoring check-ups. This allows wireless communication between the user and their caregivers with regard to their monthly health check-ups and removes the burden of a physical meeting session. Since the main goal is to focus on the correct medication schedules, aged generations will be benefited the most as they require constant taking care off. The servers are used for embedding the time schedule along with the medication details. There is also an embedded temperature sensor for examining of the user's body temperature. (Sangvanloy & Sookhanaphibarn, 2020) An automatic pet feeder has been constructed for allocation of the dry pet food for dogs and cats, with customization based on each pet owner. This provides an effective manner of taking care of the food patterns comfortably. (Moise et al., 2020) The design facilitates easy monitoring and controlling functionalities via mobile app with no cost plans. The system is controlled by the user through his phone or through the buttons present on the machine itself for choosing his required number of medications for a given time interval. There are alert messages sent to provide an indication for whether the medication was removed from the container or not. (Nijiya et al., 2018) The system has been built around prescription drugs which will assist in authenticating a patient's access of such medication based on their identity and prescribed schedule, and also simplifies the pharmacist or doctor to monitor this consumption. The system consists of intelligent reminders, care taker reminders, and dosage tracking and also notifies each time the container box is opened to provide a security feature that avoids stealing of medicines. Prescription drugs are sometimes consumed without any intent initiated by a doctor and sometimes the users may be forgetful to consume their medication, causing irregular consumption periods. To help curb these events, the system helps patients take their medication on time with value added

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