



SOLAR POWERED COIN BASED MEDICINE DISPENSER

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Abstract— Continuous advances in the public health sector and medicine are resulting in a miraculous increase in life span and more population division of older adults. This is creating a challenge for the whole world in terms of managing efficient care for elderly people. A recent study showed that the estimation of the annual gain of adults from age 65 and above will drastically exceed 10 million every year around the globe, and more than 60 countries will have around 2 million people in this group by 2030. Most of the pill-dispensing machines designed so far contain compartments as per the requirement of the product and are dispensed by anyone. The device proposed in our project proves to be reliable, easy to use, and very useful in the coordination of personal medication management, especially for older adults. In this project, we are providing 3 different switches for common diseases: Fever, Headache, Gas trouble. When any required tablets based on the description is displayed, particular switch is selected and after inserting coin, the switch is activated immediately for corresponding slot, i.e., tablet box LED will switch ON and then tablet is dispensed to outside.

Keywords: Pill-dispensing machines, LED, Switches.

1.INTRODUCTIO

An Embedded System is a combination of computer hardware and software, and perhaps additional mechanical or other parts, designed to perform a specific function. A good example is the microwave oven. Almost every household has one, and tens of millions of them are used every day, but very few

people realize that a processor and software are involved in the preparation of their lunch or dinner.

This is in direct contrast to the personal computer in the family room. It too is comprised of computer hardware and software and mechanical components (disk drives, for example). However, a personal computer is not designed to perform a specific function rather; it is able to do many different things. Many people use the term general-purpose computer to make this distinction clear. As shipped, a general-purpose computer is a blank slate; the manufacturer does not know what the customer will do wish it. One customer may use it for a network file server another may use it exclusively for playing games, and a third may use it to write the next great American novel.

ILEXSTING SYSTEM :

Diagnosis is always a concern for the people living in rural areas and for those traveling long distances in trains or buses. At the same time, medicine availability also has a major impact excluding the factor about a complete cure. The absence of 24 hours of medical providers in rural areas and the absence of medicines in bus stands, railway stations, and highways motivated us towards this work.

The aim of this prototype is that temporary relief is to be given out that can give people a better chance of resisting the health from withdrawing before they are able to reach the doctor. The problem arises when the need for some medicine is urgent and drug stores aren't open or drug isn't available, especially during already dark. In remote areas, rural areas, and places where public turnover is a smaller amount, the supply of medicines within the patient's reach may be a critical issue. These are some of the main problems that are being faced by the society in the present scenario. Degrees of social status are closely linked to

health inequalities. Those with poor health tend to fall under poverty and therefore the poor tend to possess poor health. According to the planet Health Organization, within countries, those of lower socioeconomic strata have the worst health outcomes. Health also appears to possess a robust 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. Our project although may not be an out of the box idea in its entirety, it still could prove to be useful. Especially in developing countries like India where there are many people who are unable to avail medicines. They are Band-Aids for minor abrasions and cuts, Paracetamol for reducing fever, Vicks Action 500 for the common cold and ORS packets for dehydration and other problems involving loss of fluids in the body.



Figure Existing system

III. PROPOSED SYSTEM

In order to overcome the disadvantages of the existing method our project to develop a solar and coin based intelligent medical vending machine. It is controlled by a ATMEGA328P. The medical dispenser is designed to work with both coins and solar energy and using IR sensors. As the user drops the coin, the coin acceptor and detects the coin ATMEGA328P sends signal to turn on a relay. The controller in turn on LEDs. The ATMEGA328P keeps track of the available medicines in the machine and automatically sends to LCD and turn on LEDs otherwise turn on buzzer with alert.

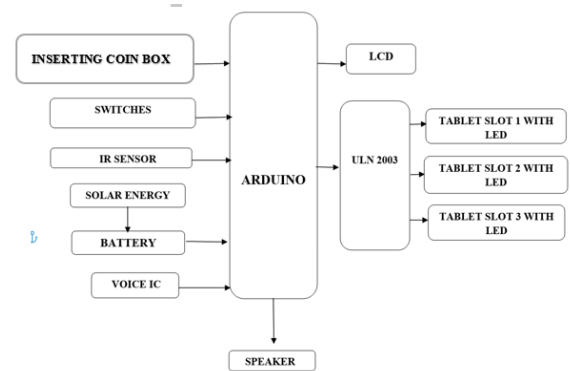


Figure: Block diagram proposed system

In this project, we are giving three types of solutions. One is medicine reminding when time arrives and the other is dispensing the right medicine at that time and other is disposing the medicine when the patient is unaware of having the pill. This will reduce the chances of man-made errors of giving wrong medicines when nurse dealing with multiple patients at a time with the help of RTC module and switches, we will set the time for three medicine doses at three different times. When the time arrives, servo will activate and release the medicine dose.

ADVANTAGES

- Availability of medicines at any time.
- We can implement in Bus stations, Railway stations and Rural areas.
- Reliability
- Affordability

IV. RESULTS AND DISCUSSIONS

A coin-based medical dispenser could offer a simple and accessible solution for medication distribution, especially in areas with limited access to healthcare. It could potentially improve medication adherence and help manage chronic conditions more effectively. However, its success would depend on factors like affordability, reliability, and the ability to accommodate various types of medications



Figure: solar powered coin based medicine dispenser

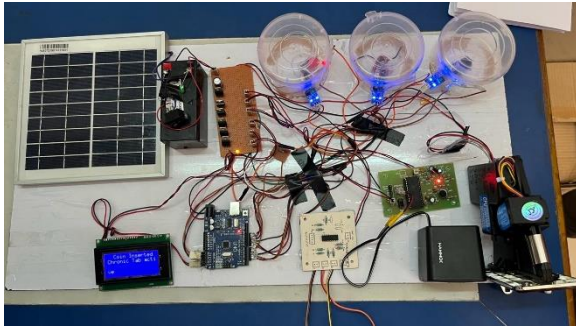


Figure: chronic tablet dispensed

A solar-powered coin-based medicine dispenser dispensed Chronic tablet to provide a convenient and automated way for patients to access their medication.

V. CONCLUSION AND FUTURESCOPE

Overall, coin-based medical dispensers represent a promising approach to addressing some healthcare challenges, particularly in low-resource settings. They can improve accessibility, automation, and cost-effectiveness while reducing human error. However, they also present unique challenges, such as security risks and ethical concerns, which require careful consideration and management.

To fully realize the potential of coin-based medical dispensers, ongoing research, innovative technology integration, and rigorous testing are essential. This approach could significantly impact healthcare delivery in areas with limited access and contribute to broader efforts to improve global health outcomes.

FUTURE SCOPE

Integrating solar power and a coin-based system into a medical dispenser could revolutionize access to essential healthcare supplies, especially in remote or underserved areas. Here's an exploration of the future scope for such a system:

1. Accessibility and Affordability:

- Solar-powered medical dispensers with a coin-based system can make essential medications and supplies more accessible to communities with limited access to healthcare facilities.

- By allowing users to pay for only the amount of medication they need, it promotes affordability and reduces wastage.

2. Expansion of Services:

- Healthcare facilities.

- By allowing users to pay for only the amount of medication they need, it promotes affordability and reduces wastage.

- Beyond medications, the dispenser could offer a range of medical supplies such as bandages, contraceptives, first aid kits, and hygiene products.

- Future iterations might include diagnostic tools like blood pressure monitors, glucose meters, or even telemedicine features for remote consultations.

3. Integration with Healthcare Systems:

- Integration with local healthcare systems could enable automatic restocking of medications based on usage data collected from the dispenser.

- Connectivity features could allow healthcare providers to monitor inventory levels, track usage patterns, and receive alerts for maintenance or refills.

4. Customization and Personalization:

- The dispenser could offer personalized medication packaging and dosages tailored to individual prescriptions, enhancing patient adherence and safety.

- Integration with electronic health records (EHR) systems could enable secure access to patient information and prescription history.

5. Remote Monitoring and Maintenance:

- IoT sensors and remote monitoring capabilities would enable real-time monitoring of dispenser functionality, temperature control for medication storage, and preventive maintenance.

- Predictive analytics could help identify potential issues before they occur, ensuring uninterrupted service.

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