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SMART HEALTHCARE SYSTEM

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Abstract:

In today's busy schedule work life, we tend to have a on the go lifestyle. It means that we want to work throughout the day with minimum time. We try to save time in each task of our daily life to do more stuff. In such life whenever we fall ill or get cough or cold like symptoms we seek medical help. We don't run to a doctor for treatment for such mild illness. If we get the same treatment at our home then it will save more time as well as we can get immediate medication. On the above principle "Smart Healthcare System" works. This device acts as a virtual doctor. Firstly it will display the list of symptoms which are commonly experienced by people in day-to-day life which will be mid illness or diseases. We have to select the symptom that we are facing and the medicine box will rotate and open the portion of the box which contains medicine for the same symptom. Additionally, if we know the medicine name or the doctor asked us to take the medicine, we can select the same medicine from the medicine list which can displayed on the screen. Upon selecting we get the medicine from the box. The medicines which are kept in the box are recommended by doctors. So there will be no such hesitation to the person taking medicines from the medicine box.

Keywords – Push switches, 20x4 LCD display, Stepper motor, Medicine box, Step angle.

1. Introduction:

Smart Healthcare System is simple health check-up and recommendation device. Whenever user fully describes his/her symptoms to the device it either gives basic medication available on the device itself which is normally recommended by doctors.

The Smart Healthcare System has 20x4 LCD Display which displays symptoms and

medicines. For navigation through display control switches are connected which are basically push buttons. These switches will be used for selecting and navigating through symptoms and medicine list.

The Smart Healthcare System has medicine box which is rotates to give medicine to user. It has Stepper motor connected for rotating. The medicine box is circular and equally divided in small compartments. It will have equal conical compartments.

The stepper motor will be controlled by microcontroller using stepper driver. Upon selecting the symptoms the motor will rotate in specified direction to give the required medicine. The microcontroller will be programmed in such a way that each selected symptom will have different compartment of medicine box assigned so that it will rotate after respective selection and that particular compartment will contain the medicine for its respective symptom.

The mechanical arrangement of the whole system will be in two portions which are control & display and medicine compartment. The control and display part will have LCD display and control switches. The medicine compartment will have a housing box for stepper motor and rotary box connected to its shaft and that box will have opening of same size as one compartment of rotary box so that user can pick up medicine from that open part.

2. Problem Definition:

We could seek medical help anytime irrespective of place. At night where most medical shops are closed and our family doctor is also not available.

Also, the places where this system might be useful are:

- Hostels
- Schools
- Public Transport

Specially, elderly people who live alone might find this helpful.

3. Proposed System:

The system uses Arduino UNO board. It houses an ATMega 328p microcontroller. LCD Display, control switches and stepper motor driver will be connected on i/o pins of arduino uno.

There will be 3 control switches. First switch will be for self-check-up which will display various symptoms on the screen. Second switch will be for medicine selection where user can directly get the medicine from the box. These two switches will help to scroll through the list displayed on screen. The third switch will be for getting the medicine. While scrolling when we come across desired symptom or medicine we will press this switch and the box will rotate to desired medicine compartment.

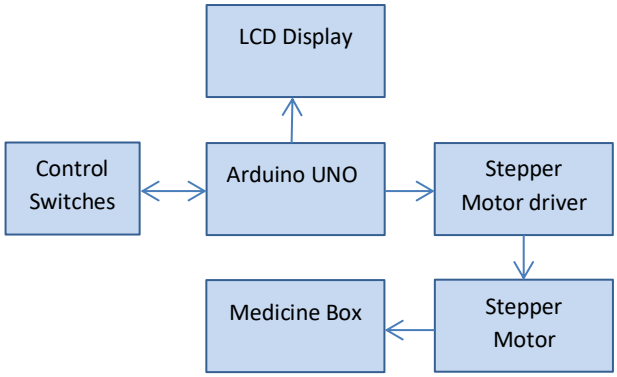

Fig 1: Block diagram of proposed system.

Fig 2: Medicine box

Fig 3: Proposed System

4. Conclusion:

The system most importantly saves a lot time such as time required to call a doctor or consult a doctor or going to medical shop for purchasing medicine. We just need to tell our symptom to the system or select the medicine (if we know) to get the medication

5. Future Work:

Lot of additional features can be added such as medicine scheduler with alarm, voice assisted interaction, blood pressure, blood sugar etc. monitoring. Also the health monitoring devices can be connected to system such as, pulse oxi-meter to further diagnose and treat the patient more specifically.

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