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ANY TIME MEDICINE USING LPC2148

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Abstract – *Anytime medicine vending machine, a machine which dispenses particularly medicines but in general a vending machine automatically dispenses any other items also with less human intervention. The user can buy the medicine of his choice just by swiping a card from which the amount gets deducted. This saves the person time as he doesn't need to wait in queues in front of medical store. Also the women mainly who are shy to ask certain kinds of items like disposable pads can just go swipe the card and get their item without waiting for others. Thus similarly to Automatic Teller Machine, this can also be deployed anywhere and anytime allowing people to access it anytime. Moreover, during the times when a location is suffering from pandemic, this can save others from going to clinics thus contributing partly towards preventing the danger.*

Key Words: **lpc2148, Vending machine, medicine, Embedded, dc motor, RFID.**

1. INTRODUCTION

The medicine providers are not present 24 hours with their shop open. Only a few pharmacies provide medicine services whole day. Such pharmacies are present very far away or only a few such shop exists for a particular location. So the person cannot go in search of such shops especially during night. The aim of our project is to develop a system which can dispense basic medicines which need not be prescribed by doctors. Every medicine has a limit beyond which it cannot be dispensed.

Our system just offers few such items in limited manner. Such a system prototype is developed using ARM (lpc2148) platform. Thus the system can be deployed in the areas where no pharmacies are present or in any rural areas. The advantage of this system is that it is easy to operate and user friendly. Such machines are needed to provide better healthcare facilities to people in remote areas. When working of this system is considered the user just needs to have RFID card to swipe and needs to proceed as per the instruction displayed on the LCD.

Such systems are in high demand as everything is automatic and no human involvement is needed.

2. RELATED WORK

Mahaveer and Dankan in "Design and Implementation of Automatic Medicine Dispensing machine" designed a system which dispenses medicines based on readings of sensors.

Liu and yun in "Design and Application for Automated Medicine Depositing and Dispensing System of Pharmacy" 2008 analyzed the control system of the hardware that is responsible for medicine vending machine.

Nazerke and Ilyas in "ZhardEM Medicine Vending Machine" designed an Arduino based medicine vending system which included coin detector and was able to dispense two types of medical items.

Vishal Tank, Sushmita Warrier, Nishant Jakhiya in "Medicine Dispensing Machine Using Raspberry Pi and Arduino Controller" designed a system which used the mechanism of coin detection and collection.

3. METHODOLOGY

The basic working of our project idea is given in the block diagram below.

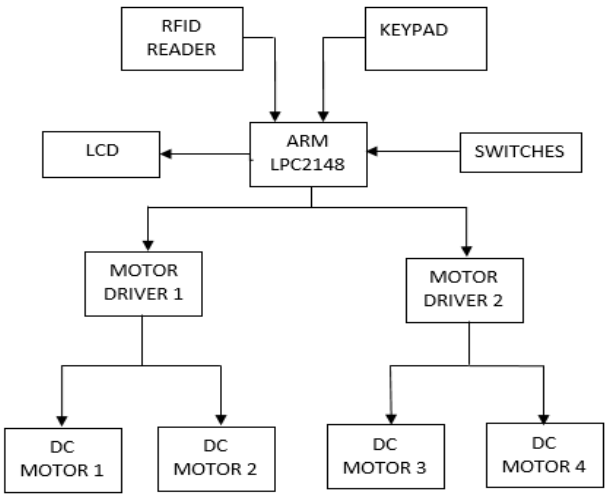

Fig -1: Block Diagram

4. SYSTEM ARCHITECTURE

Our system is implemented using the following components-

4.1 ARM CONTROLLER (LPC2148)

Fig -2: LPC2148 Board

It is an ARM7TDMI-S based high-performance 32-bit RISC Microcontroller with Thumb extensions 512KB on-chip Flash ROM, 32KB RAM, two SPI and I2C each serial interfaces, PWM unit, Vectored interrupt controller, watchdog timer and on-chip PLL.

4.2 RFID Reader

Fig -3: RFID Reader module

It works in the similar manner to Barcode technology. A Radio Frequency Identification reader is used to keep track on individual objects or items.

4.3 DC Motor

It is a machine that converts DC electrical power into mechanical power. It works based on the principle of Fleming's left-hand rule.

Fig -4: DC Motor

4.4 LCD

Fig -5: 16x2 LCD

Operating voltage is 4.7V to 5.3V, consists of 16 columns and 2 rows where each row can print 16 characters. There are a lot of combinations available like, 8×1, 8×2, 10×2, 16×1, etc. But this is commonly used.

4.5 KEYPAD

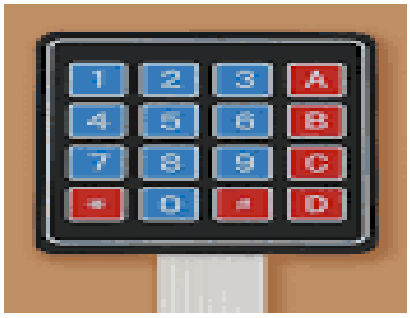

Fig -6: Keypad

Keypad is arrangement of switches in matrix format in rows and columns. They are used in many of the applications. In our project it is used by the user to enter the quantity of medicine and to choose which type of medicine they need from the given list of medicines.

5. CONCLUSION

The medicine vending machine offers great flexibility that it can be implemented in any rural area or remote places, thus contributing towards the improvement of healthcare sector. As it is user friendly, many people can get maximum advantage of it as they need not have to visit far away for pharmacies during night. Moreover it can be very helpful in the location which is suffering from pandemic as they need not have to pay visit to clinics or medical providers.

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