

Advanced Medicine Vending Machine for Highways

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Abstract-Vending machines is a money operated machine for selling various first aid items. Now-a-days, first aid is a basic necessity and maybe needed by anyone at any point of time. There are times when people suffer from minor injuries like cuts, sprain, scrapes etc and need first aid, pharmacy might not be within reach. For this purpose the idea of Vending machine was proposed. In this project main objective is a device which can make first aid available to the people who are in dire need of it. The system is based on Arduino microcontroller using embedded C as programming language. LCD screen, buttons and coin acceptor are some of the components that are used in this project. When the customer pushes the right button, the LCD displays the amount that is used in this project. When the customer pushes the right button, the LCD displays the amount that needs to be inserted. When right amount has been inserted the product will be inserted according to the customer's need. The Vending Machine can be used at Metro Stations, Bus stands, Highways ,etc.

I. INTRODUCTION

Vending machines are used all over the world by different kinds of people. A vending machine is automated machine that dispenses items such as snacks, cigarettes, lottery tickets, beverages etc. therefore, a vending machine dispenses different kinds of customer utility products. There is no aid present on national/state highways and in case of emergency/accident, it take time for medical help to arrive at the site. So, first aid can save life. The objective of this project is to make items available to the people who are in dire need of it. Examples of such situations could be on the State Highways and National Highways especially during night time.

II. METHODOLOGY

Medical dispenser works according to the command given by the coin acceptor according to the inserted coin. Coin

accepter sends to the microprocessor ATMEGA328 (AURDUINO UNO) and microprocessor will rotate the servo motor. The Vending machine then processes this information and accordingly will dispense the chosen items. The name of the items and the input by the user is displayed on the 16X2 LCD display.

III. SYSTEM ARCHITECTURE

The Microcontroller ATMEGA328 remains the core of the system at the centre. The +12V power supply is connected to the two voltage regulators i.e. LM2596 and 7805, which step down the voltage to +5V. All the components are interfaced to the microcontroller. Microcontroller processes the inputs from the coin acceptor and keypad matrix. And accordingly rotate the desired servo motor and display it on the LCD display.

IV. HARDWARE USED

The hardware components are following:

- Voltage Regulator 7805
- LM2596
- LCD Display
- Servo Motor
- Coin Acceptor

1. LM2596

It is a voltage step down and current step up converter. It converts +12V to +5V. It is been used to provide power supply to servo motors.

2. LCD DISPLAY

LCD JH8162 is used to display user's input and item's name.

- Features
- 16 characters* 2rows
- Operating Power: -0.3V to +7.0V
- 8 I/O Pins

3. SERVO MOTOR

- MG995 Servo motors.
- 0degree to 180degree movements.
- Pulse Width Modulation input.

4. COIN ACCEPTOR

- Accepts 3 types of coins(1, 2 &5)
- Wires
- Red- dc input
- White coin pulse
- Black- ground
- Grey-counter

V. SOFTWARE DESCRIPTION

Connecting hardware according to the circuit diagram does not really work well. You need to program the components

accordingly so as to work according to the algorithm you have designed in order to make the project work according to the algorithm you have designed in order to make the project work properly as required. AURDUINO IDE is the software being used.

VI. RESULTS

A +12 power supply is connected to the 2 voltage regulators, i.e. LM2596 and 7805. The voltage regulators step down voltage to +5V. LM2596 provides power to the servo motors only and 7805 provides power to the rest of the circuitry. LCD will display the step wise processing of the machine. Now the required Items will be selected using the keypad. A desired coin is inserted in the coin acceptor. The microprocessor will compare the input from the keypad matrix and the pulses from the coin acceptor, if they are equal it will rotate the servo motor, if not it will display an error on the LCD. The user can now collect the items.

VII. CONCLUSION

The paper has presented a machine which dispenses the medicines as first aid in areas like state and national highways.

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