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Mobile Charging on Coin Insertion

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Abstract- The coin based mobile battery proposed in this paper provides services to rural where grid power is unavailable for large duration to charge their phones. Installation of battery charger is quick and easy. Urban population uses advanced technological mobile that have batteries with higher storage, while people in rural cannot afford such expense. Sources are direct power grid and solar energy respectively in rural areas.

Keywords- Microcontroller, UART Serial Channel, LCD, In-System Programmable.

I. INTRODUCTION TO MODULE DESIGN:

Input Stage:
When a user inserts a coin into a slot sensor which is then validated by some parameters like, the diameter of the coin inserted. LCD displays a message as follows "insert coin". If the insertion is valid, then a message is displayed in the LCD. If the coin is invalid, it is issued back to the user. The coin which is accepted, following an activation of sensor and relay resulting in the start of the battery getting charged by the software.

Controller:
The system performance is based on input signal within the circuit as it is based on diameter of the coin used by the user and then it is either rejected or accepted .If a coin is accepted, then it is sends a signal back to the sensor with an interface message.If the sensor receives a signal from a coin sensor, it then sends back a signal with a relay. Then it generates DC voltage, which is used to charge the mobile phone with a phone chargeable terminal.

Output and Display:
The LCD interface displays a message when required as the phone charger is connected to a LCD display "Please insert coin". As it charges it would display as "Charging" and then the duration of charging left based of the coin which was inserted.

Power:
The charger draws the total power from the sensor across relay. As it is a connected voltage for mobile phone which is totally regulated.

II. IMPLEMENTATION

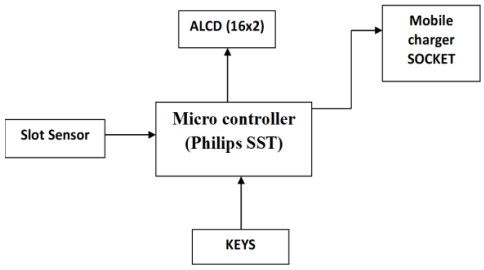

Figure 1: Proposed System Work Flow

III. PROPOSED WORK

To implement above Proposed System mainly we are using Microcontroller, slot sensor, ALCD, KEYS, mobile charger, solenoid and weight measurement system.

In this Proposed System slot sensor is used for to insert the coin. The sensor sends electrical output signal to microcontroller and the microcontroller unit analysis the number of coin dropped on the coin box[1] and according to that the sensors operates.

The people will deposit the money in the coin box. The sensor senses the coin and gives the output signal to the solenoid valve. According to the money paid by the people then the solenoid valve opens the gate valve of the tank and delivers water.

In this Proposed System we are using some 3 keys, one for mobile charging, and one of the weight measurement sensors which is based out of 8051 architecture based out of a P89V51RD2 microcontroller which is used to implement this Proposed System. Microcontroller acts mainly as a core part of this Proposed System implementation, which in turns used to mainly controls the whole system.

It mainly contains of 1k RAM, 64k Flash, 3 Timers, 2 external interrupts, 1 UART, 32 GPIO's, ISP programming support etc and a KEIL IDE which is used as a external program with a microcontroller and the code which will be done with Embedded C.

IV. MODEL BUILDING

Power supply

The microcontroller and other devices gets its power supply from an AC to Dc convertible adapter through which a voltage regulator produces out an output voltage of 12V DC which the 7805 voltage regulators are used to convert 12 V to 5VDC.

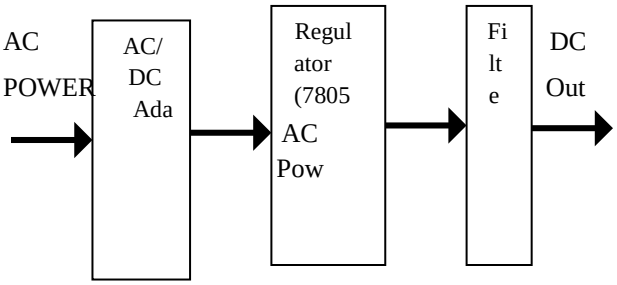

Fig. 2

4.2 Vital role of Buzzer

The adapter provides an output voltage range of 12V DC with a non regulated voltage regulator of 7805/7812 which are used to convert 12 V to 5VDC[2].

4.3 Micro controller-AT89S52

The AT89S52 is an low- powered, high-performance yielding microcontroller with a 8K bytes as its in-system [1] programmable Flash memory which the device is actually manufactured to use Atmel's high- density based non-volatile memory technology which is compatible with the industry based standard 8051 instruction set.

V. FEATURES OF THE SYSTEM

- 8K Bytes of In-System Programmable (ISP) Flash Memory
- Endurance: 1000 Write/Erase Cycles
- 4.0V to 5.5V Operating Range
- 256 x 8-bit Internal RAM
- 32 Programmable I/O Lines
- Full Duplex UART Serial Channel
- Fully Static Operation: 0 Hz to 33 MHz

VI. DATA FLOW IN THE SYSTEM

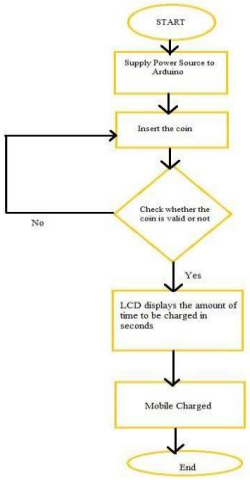

Figure 3: Data Flow in the System

VII.VITAL ROLE OF MICROCONTROLLER

The micro controller controls the movement of car that is left, right, forward reverse.

Buzzer:

The buzzer with a 2 KHz audible tone produces the buzzer which sounds like a signal coming out of a highly connected transistor, driver subsystem. As the buzzer is connected between the supply rails of positive of the input signal. Which as load on the drivers. When used as the input signal coming into the buzzer subsystem with a low, and potential difference between the buzzers causes current to flow as It is this flow of current that causes the real buzzer to sound up.

VIII. LCD [LIQUID CRYSTAL DISPLAY]

LCD's provides a user interface to the entire users, to debug a real application which is really provided by the screen with a Hitachi 44785 a simple interface between the processor and an LCD. This interface is often not attempted by inexperienced designers and programmers as it is difficult to find documentation on the interface to initializing the interface which can be a great problem and the displays are expensive[3].

LCD is a single line display with a 2-line display, 4 line displays with every single line having 16 characters each.

a. Vital role of LCD

LCD displays the status of movements of car that is left, right etc

b. RS 232 CONVERTER (MAX 232N)

Max 232 converts into RS232 composition.

c. RS-232Protocols

RS-232 is created mainly with one purpose in mind, *to provide an external interface between Data Terminal Equipment and Data Communications Equipment providing a sequence a binary data exchange.* This in return stated as the terminal for the computer between DCE and the modem communications device. RS-232 is a pin-out for IBM compatible computers as shown below with two configurations that are typically used with one for a nine- pin connector and the other with a 25-pin connector.

9-pin RS-232 Pin-out

PIN	DESIGNATION
1	Data Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Signal Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator

FIGURE 4: PIN'S AND THEIR DESIGNATION

d. Voltage range

The standard voltage range running on RS-232 pins is -15V to +15V. Then voltage range applied to all the RS-232 signal pins. The total voltage swing during signal transmission can be as large as 30V. In many cases, RS-232 ports will operate with voltages as low as -5V to +5V.

NOTE: signal should not only run with high impedance micro phonic lines in a system. In such a case where you must run types of signals nearby one another, which makes it more important that all audio wires are properly arranged[4].

Vital role of RS232 Converter (Max 232n)

RS232 chip converts data coming for 12 volt logic to 5 volt logic and vice versa.

IX.APPLICATION

This Proposed System slot sensor is used for to insert the coin. The sensor sends electrical output signal to microcontroller and the microcontroller unit analysis the number of coin dropped on the coin box and according to that the sensors operates which is used to implement this Proposed System. Microcontroller acts mainly as a core part of this Proposed System implementation, which in turns used to mainly controls the whole system.

X. CONCLUSION AND FUTURE ENHANCEMENT

Model Evaluation is part of the model development process. It finds the best model that represents our data and how well the chosen model will work in the future. Evaluating model performance is unfit for training as it is not acceptable in data science because generates overoptimistic and over fitted models.

There are two methods of evaluating models in data science, Hold-Out and Cross-Validation. To avoid over fitting, both methods use a test set (not seen by the model) to evaluate model performance.

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