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AUTOMATION PETROL BUNK MANAGEMENT USING PREPAID SMART CARDS BY USING WIRELESS TECHNOLOGY

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ABSTRACT

In class rooms or in offices we can see lot of energy is wasted because the people are switching on the Fans and lights and leaving them switch on. In our project we are implementing novel system to save the power loss. We are allotting a campus card to every student and whenever they entered into class we are going to read their number and count is going to increase and at the same time whenever they are leaving the class room the final count is going to reduce. In addition to the count we are inserting sensors in the class room to detect where the person is sitting. When the count is valid then we are switching on light and fan at particular position where the person is sitting and we are going the save power by switching off the remaining electrical appliances. To detect the person we are going the place the IR based trans-receivers. They are going to detect the where person is sitting. Since we already know how many people are there in the room and we also know where they seated and it is very easy that where we have switch on the fan and light's. If all the persons leave the class room then we can switch off all the electrical appliances in the class room. With the help of this system large amount of energy can be saved.

Keywords :ARM7 board, IR sensors, Rfid, dc motor,LCD,relays

I.INTRODUCTION

Automation petrol bunk management is a microcontroller based project which controls the whole assembly i.e. smart card, relay, motor. It also provides onsite recharge facility. The main attraction of this project is that it eliminates human interaction and avoids the situation of black selling when there is no serviceman. In this, microcontroller acts as a master device while smart card acts as slave device. On completion of transaction, money is deducted from card and the updated balance is shown again. In case of low balance, transaction cannot complete and respective message is cannot complete. Every time fuel is dispensed, a bill giving details of the date, time and quantity of the petrol will be generated automatically. In this manner many ideas have been proposed to discover Automation Petrol Bunk

1.1 Domain Description (wireless conversation, protection, Automation…)

In this undertaking are utilized in smart card and wireless networks Each vehicle is fitted with a prepaid card. When a car has arrived at the gate, the RFID reader reads the card and opens the gate, only when the card is a valid card. Once entered the user will be shown the balance amount available on the card and he must select a option to dispense the fuel based on liters or rupees. The system should check

II. EXISTING SYSTEM

Today almost all petrol pumps have a microcontroller to control the electrical pump, drive the display, measure the quantity and accordingly turn off the electrical pump. But still a person is required to collect the money. Our project is designed to eliminate this human interaction so that there is no need of workers to fill the petrol. In this system, all drivers have a RFID card which can be recharged by some points. The petrol pump is equipped with a RFID reader which reads the amount in the card and will display it on the LCD.

III. PROPOSED SYSTEM

Automated have added to the new look of the petrol bunks. A drastic change which has taken the city by storm is the petrol machines that have invoked a new look with Automated systems invading this area also. Now one can get updated details on the mobile using the cutting edge GSM Technology. This makes the customers know the exact quantity of petrol that has to be filled in, getting over the perennial problem of forgoing small change which most of the times the attendants at the bunks pocket for themselves. The traditional archaic pumps have now been replaced by more advanced EMP Petrol Pumps for proper filling of fuel. This not only ensures accuracy, but also saves a lot of time for customers and avoids misconceptions and arguments. To demonstrate this as a project we have developed a lpc2148 Micro controller based Petrol bunk automation system.

Block Diagram:

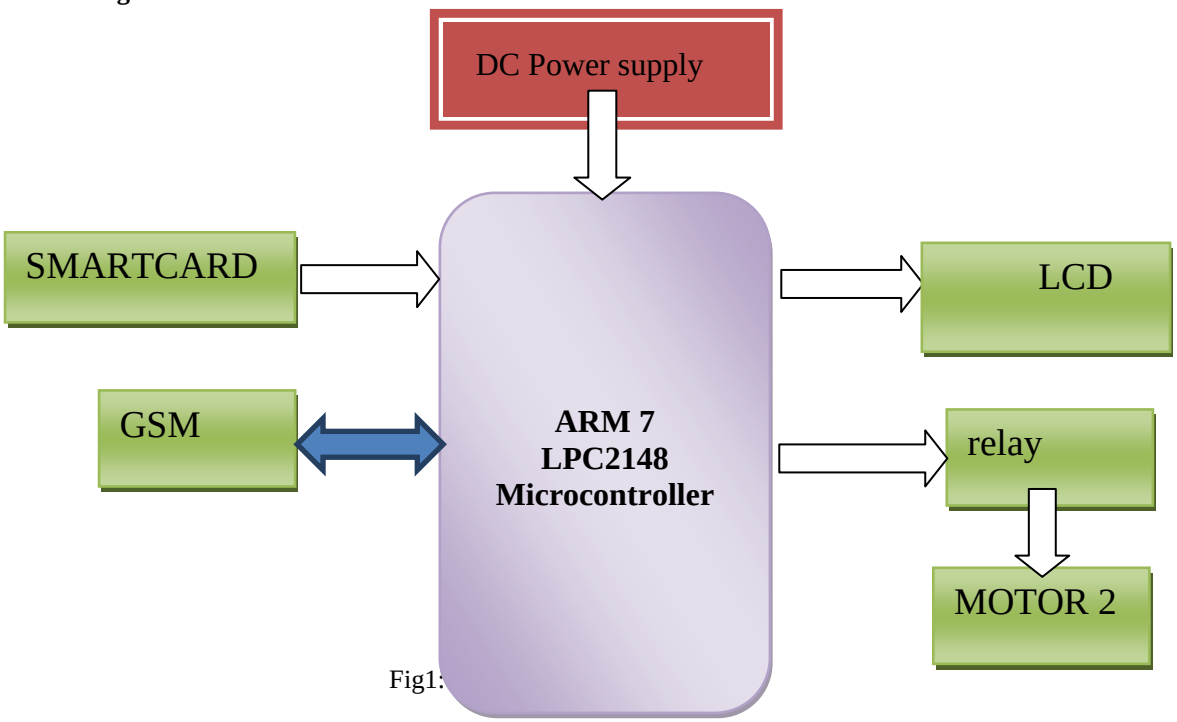

Fig1:

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LPC2148 microcontroller

The ARM7 (superior RISC system) pressers board primarily based complete on a 16/32-bit ARM7 its approach of 16/32-bit ARM7 TDMI-S microcontroller, eight computer memory unit to 40 pc reminiscence unit of on-chip static RAM and 32 computer memory unit to 512computer reminiscence unit on-chip flash reminiscence; 128-bit In- system Programming (ISP). 32-bit timers/out of doors occasion counters, PWM pulse width modulation unit (six outputs) and watchdog, Low electricity of actual-Time Clock (RTC), more than one serial interfaces which has 2 UARTs , speedy I2C-bus (400kbit/. There are sixty four pins of ARM7 processer and a couple of ports (port0, port1) 45 pins are enter/output.

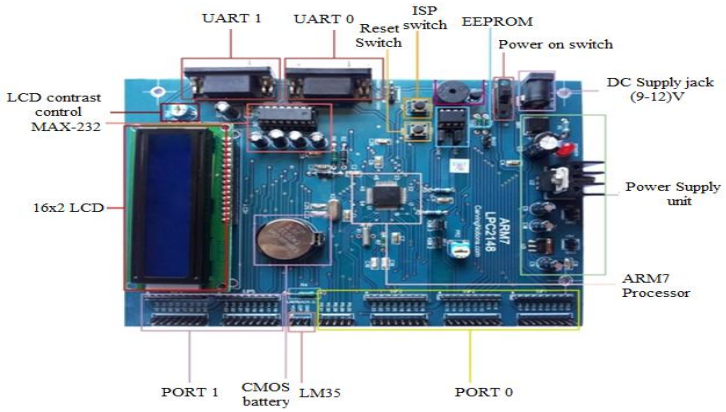


Fig2:-LPC2148 board

GSM (GLOBAL SERVICE FOR MOBILE COMMUNICATION)

The GSM module is SIM 900D is a powerful GSM module for SMS and call control .GSM networks feature in four specific frequency levels. Maximum GSM networks feature within the 900 MHz or 1800 MHz bands. A few international locations in the Americas use the 850 MHz and 1900 MHz bands because the 900 and 1800 MHz frequency bands had been already allotted. The rarer 4 hundred and 450 MHz frequency bands are assigned in a few worldwide places, wherein those frequencies were previously used for first-era structures. The module consists of SIM 900 A for calling and messages.

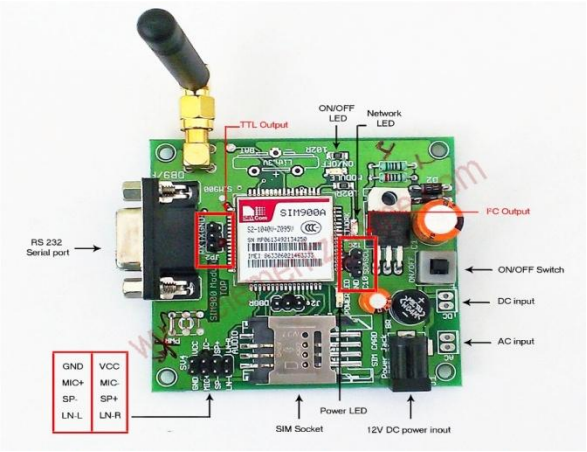


Fig 4. SIM 900D GSM Modules

Smart Card

The smart card is memory device which can store the 256 kb data. The smart card has the 256 kb of the data. In that 0-31 data was stored the company profile data from 32- 256 memory locations we can stored our required data. In the smart card we can write and read the data. In this we give one smart for every account, whenever the/she take the book from the library he need to place the card on the reader that data will be stored in the card and system data base. While we are returning the book again need to insert the card so that will be deducted in our account. By writing and reading the data we have a some specific format with that format only we can read and write the data.

Fig 5 smart card reader

Keypad

A keypad is a set of buttons organized in numbers and letters, digits and other symbols however not a complete set of alphabetical letters. If it mostly contains numbers then it will conjointly be known as a numeric data input device. Keypad area unit victimization typewriting of security purpose area unit found on several alphabetic keyboards and on alternative devices such as calculators. It's given that an data input device, sometimes half of a typical keypad, consisting of a separate grid of numerical and function keys organized for economical information entry.

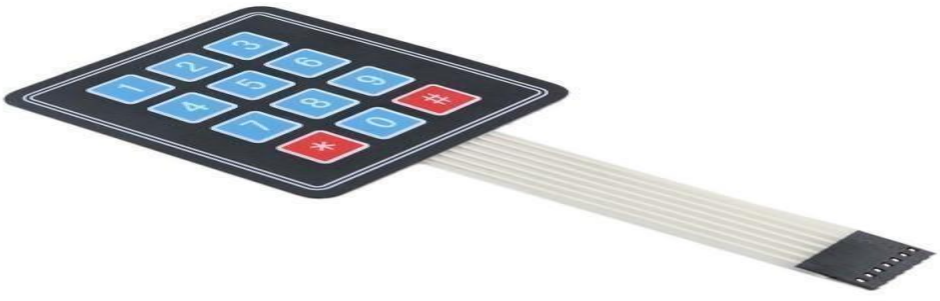


Fig 6: 4X3 keypad

L293D:

The L293D is a quadruple excessive-present day half of-H drivers, it additionally referred to as as line motive force circuit. The L293d is designed to provide bidirectional power currents of up to 1 A at voltages from 4.5 V to 36 V. The driver contains completely 16 pins, in that 4 pins for enter and 4 pins for output. The output pins are connected to the vehicles and input pins are takes from the controller and l293d contains electricity supply pins and two floor pins. The major use of the l293d IC is besides up the voltage levels to run the D.C motor. Here we're taking the four enter pins and four output pins, the D.C motor calls for best pins so we can run motors at a time by way of the use of the l293d motive force IC.

Motors

Motors are electro mechanical gadgets which can be used for the onvert the electrical alerts into mechanical indicators. The all D.C vehicles are have same internal mechanism, both electromechanically to exchange the route of contemporary waft in a part of the motor. In challenge we're used for to move the motor in precise path. We need to attach the motor to controller thru driver IC handiest.

Fig6:dc motor

III. SOFTWARE DESIGN

In this proposed contrivance, as we tend to used LPC2148 we wish to use following software package instrumentation to program for it.

1. Keil4 Vision
2. Flash Magic

The Keil4 Vision an IDE for Embedded c programming language. In this IDE, we want to import the utilities and libraries steady with the controller. This IDE may be very extra effortlessly and in person friendly thanks to practice, assemblers, and debuggers in it. It simplifies the manner of embedded simulation and trying coming into conjunction with Hex file technology. The flash magic is a programming application. The C/C++ software program written in IDE could be processed into Hex report i.E. In .Hex format. By the usage of hex report we tend to products the code into microcontroller and carry out application

IV. WORKING PROCEDURE

In this project, the customer having the smart card. The card is nothing; magnetic memberis embedded in the card. The reader circuit generates majestic signal to read the majestic number. When customer shows this card on the reader, the reader reads that majestic number and given the corresponding signal to microcontroller. In

microcontroller, we have already programmed. So it checks the number whether it is an authorized card or not and the corresponding information is displayed on the LCD display. The keypad is used to enter the cost of petrol and availability of money. In microcontroller we already set time for liters. When you entered the designed liters on the keypad the microcontroller activates the relay driver for that particular time period. The driver circuit is used to turn ON, turn OFF the motor. Driver output is directly connected to petrol pump. So it pumps the petrol as per our designed quantity entered in the keypad. The petrol and their corresponding cost are displayed on the LCD display. It is equipped with GSM module to deliver the information such as available balance is sent to the user's mobile phone.

V. FUTURE SCOPE

This technology can be enhanced to implement the same system for petrol authentication and petrol cost to mandatory, so it was to developing on the project its processing of future of the project operator less of petrol bunk

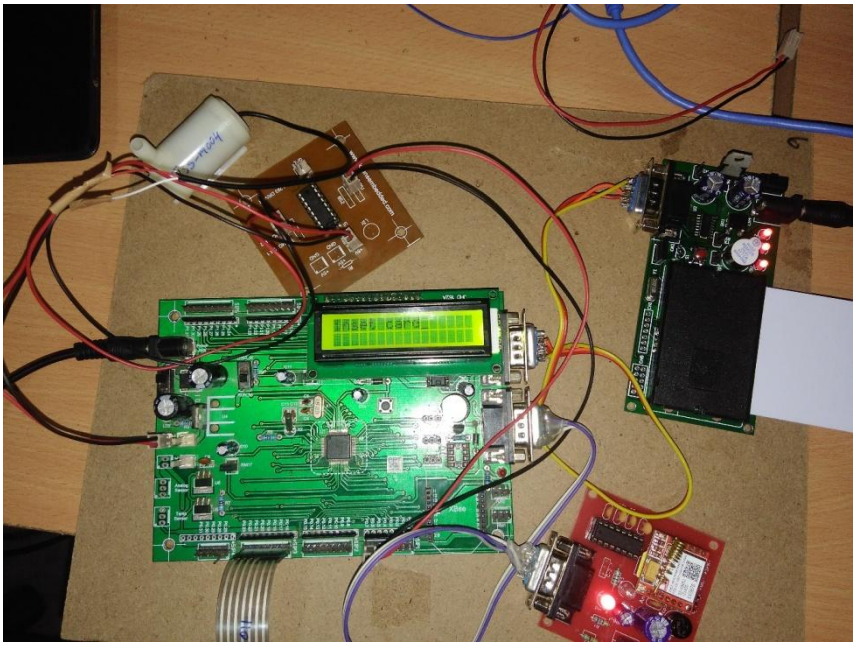
VI. ADVANTAGE OF PROJECT :

• Benefits for Students and petrol bunk

• Improved security of petrol bunk

VII. RESULT

The complete prototype as developed was tested and verified results .It successfully deduct the money from smart card also received a alert information. and operation of the project is clearly verified.



VIII. CONCLUSION

By using this project we can reduce the usage of the power in this campus card and we can increase the life span of the bulbs, whenever the count reaches that particular level some lights will be switch ON that is depending upon our requirement, and it will be very useful for security if we want open the door we need to type the password, if password will be match than only door will be opened.

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