

Automatic Delivery Vehicle

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Abstract: In this, Titled as “AUTOMATIC DELIVERY MACHINE” is about the design of microcontroller operated vehicle to make the intercampus delivery system much more feasible. The objective of this PROJECT is to develop an automation that can remove the human effort required to deliver an object from one location to another location, through the use of microcontroller.

Keywords- battery, keypad, IR sensor, LCD, motors.

I. INTRODUCTION

The objective of this PROJECT is to develop an automation which will take away the human effort needed to deliver an object from one location to a different location, through the utilization of microcontroller. This project consists of battery, keypad, IR device has input modules and digital display, motors has output modules. The supply from the battery is given to the motor driver and therefore the microcontroller, and a parallel association is given to the 5v regulator. The regulated 5v is given to the digital display, and therefore the change pins. As all modules are started, the digital display prompts the user for the destination. The user provides the destination through a pre-defined code, through the keyboard. The signal from the keyboard is given to the microcontroller, that checks it against AN array of outlined locations, and displays its accessibility. If the situation is accessible, then the microcontroller sends the suitable signals to the remaining modules, thus on reach the destination. The microcontroller sends the management signals to the motor driver to run the motor as per the formula permitting it to achieve the destination. If the situation such that isn't a neighborhood of the pre-defined array, then the microcontroller instructs the show|LCD|digital display|alphanumeric display} to display a slip message and prompt the user for an additional location. As all this can be happening, the IR transceiver is consistently watching the environment for the presence of any obstacles. If the IR device senses any obstacle from the encompassing space, the microcontroller is signaled to show down the motors, and show the corresponding message.

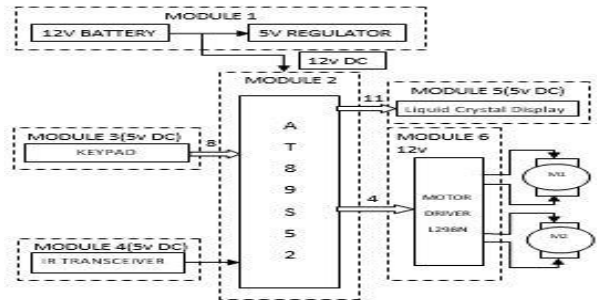


Fig-1 Block Diagram

II. BLOCK DIAGRAM DESCRIPTION

Module 1 is that the power offer unit. the ability from the 12v battery is provided to the motor driver and microcontroller modules directly, whereas the regulated 5v offer is given to the opposite modules.

Module 2 consists of the microcontroller. this can be the most computing and dominant unit within the whole project. the various input and output modules square measure connected to the current module.

Module 3 could be a 4x4 matrix keyboard, that is within the input section of the project. given|the required} location is specified through the keyboard, whose signal is connected to the microcontroller.

Module 4 consists of associate degree IR transmitter and a receiver that is employed to observe the environment for the presence of any obstacles. If associate degree obstacle is detected, then the microcontroller is signaled to right away stop the motors.

Module 5 contains the liquid show (LCD), and is that the graphical a part of the programme. It prompts the user to enter the code of the destination, displays error reports and conjointly shows the standing of the method.

Module 6 is that the module consisting of the motor driver L298 H-bridge motor driver and 2 12v motors. this can be the module that has the specified motion to the vehicle.

BATTERY



Fig-2

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Automatic Delivery Vehicle

A rechargeable battery is also a range of electrical battery which can be charged, discharged into a load, and recharged once more and once more, whereas a non-rechargeable or primary battery is provided completely charged, and discarded once discharged. it's composed of 1 or a lot of mechanical device coils. we have a tendency to square measure victimisation 12v, 1.2Ah reversible battery for our project. we have a tendency to square measure victimisation the battery for motor drivers. we have a tendency to square measure regulation 12v DC voltage to 5v DC voltage for victimisation as input voltage for the opposite elements. If batteries square measure used repeatedly even while not practice, they lose capability because the variety of charge cycles will increase, till they're eventually thought of to possess reached the top of their helpful life.

Several ordinarily used styles of reversible batteries square measure such as to last between four hundred and a thousand full charge and discharge cycle.

Another vital of the battery is that the battery terminal or post. On every battery, there square measure a minimum of 2 posts. One are negative post and also the different positive. The positive terminal are marked with a '+' image and with an oxide or cowl. The positive post is usually larger than the negative post also. The negative terminal are marked with a '-' symbol and have a atomic number 6.



Fig-3 Microcontroller

The ATMEL 89S52 implements a separate memory house for code and information, each code and information memory is also internal, however, each may be distended victimization external elements up to a most of 64kb of code memory and 64kb of information memory. The memory consists of AN on-chip read-only storage (4kb) and on-chip RAM (128B). The on-chip RAM contains made arrangements of all-purpose storage; bit available storage, register banks, and special perform register (SFR). it's a lower power, high performance CMOS 8-bit digital computer with 4kb of Flash Programmable and eradicable browse solely Memory (EPROM).

FEATURES

- The register and input/output ports square measure memory mapped,
- The stack memory resides inside the interior RAM.
- Fully static operation: 0Hz to 24MHz.
- Six interrupted sources.
- Programmable serial channel.
- 32 Programmable I/O lines.
- Two 16-bit timer/counters.
- 4.0 to 5.5V in operation vary.
- Three level program memory lock.

- Full duplex UART.
- Dual information pointer.
- Power off flag.
- Fast Programming Time.
- Flexible ISP Programming.

KEYPAD



Fig-4

Matrix keyboard is employed for loading numeric knowledge into the microcontroller. It consists of sixteen buttons organized within the kind of AN array of 4 rows and 4 columns.

The keyboard is typically used as follows:

1. Four microcontroller's pins ought to be outlined for rows, the and alternative four pins ought to be outlined for columns. so as the keyboard to figure properly, pull down resistors ought to be placed on the microcontroller's input pins, so process logic state once no button is ironed.
2. Logic zero and logic one ought to be outlined for the open and shut condition of the buttons. By pressing any button, a logic one (1) can seem on the relating pin.
3. By combining zeros and ones on the output pins, it's determined that button is ironed.

IR SENSOR



Fig-5

An Infrared sensing element is AN device, that emits so as to sense some aspects of the environment. AN IR sensing element will live the warmth of AN object still as detects the motion. These varieties of sensors live solely infrared emission, instead of emitting it that's referred to as as a passive IR sensing element. typically within the spectrum, all the objects radiate some style of thermal radiations. These varieties of radiations area unit invisible to our eyes, which will be detected by AN infrared sensing element.

The electrode is just AN IR semiconductor diode (Light Emitting Diode) and therefore the detector is just AN IR photodiode that is sensitive to IR light-weight of constant wavelength as that emitted by the IR semiconductor diode. once IR light-weight falls on the photodiode, the resistances and these output voltages, amendment in proportion to the magnitude of the IR light-weight.

Standard IR sensing element is for obstacle detection and line detection functions. The sensing element is supplied with a potentiometer for activity and comes with another advantage of choosing analog or digital output.

LIQUID CRYSTAL DISPLAY



Fig-6

A liquid show (LCD) could be a flat panel show or alternative electronic visual show that uses the sunshine modulating properties of liquid crystals. Liquid crystals don't emit light-weight directly LCDs area unit obtainable to show arbitrary pictures (as in a very general purpose pc display) or fastened pictures with low data content, which might be displayed or hidden, like planned words, digits and 7-segment displays, as in a very digital clock. They use constant basic technology, except that arbitrary pictures area unit created from an outsized variety of little pixels, whereas alternative displays have larger parts.

We continuously use devices created from liquid show (LCD) like computers, digital watches and additionally optical disk and CD players. They need become quite common and have taken quiet leap within the screen business by clearly substitution the employment of ray tubes (CRT).CRT attracts additional power than liquid crystal display and are larger and heavier. All people have seen AN liquid crystal display however nobody is aware of the precise operating of it. Allow us to take a glance at the operating of AN liquid crystal display.

MOTOR DRIVER

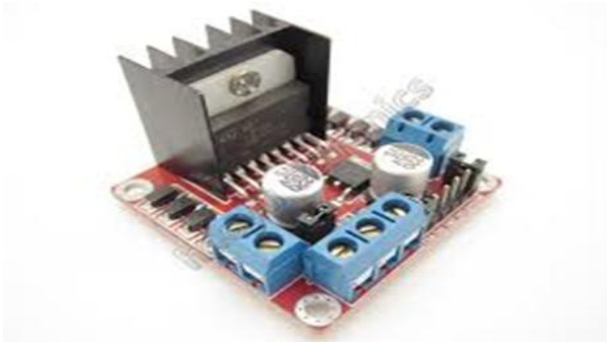


Fig-7

The L298 is associate integrated monolithic circuit in Associate in Nursing passing 15-lead Multiwatt and Power

SO20 packages. it is a high voltage, high current twin full-bridge driver designed to merely settle for customary TTL logic levels and drive inductive a whole bunch like relays, solenoids, DC and stepping motors. 2 change inputs square measure provided to change or disable the device severally of the input signals. The emitters of the lower transistors of every bridge square measure connected along and also the corresponding external terminal may be used for the affiliation of associate external sensing electrical device. An extra offer input is provided in order that the logic works at a lower voltage.

FEARTURES

- 1)OPERATING offer VOLTAGE UP TO 46V
- 2)LOW SATURATION VOLTAGE
- 3)TOTAL DC CURRENT UP TO 4A
- 4)LOGICAL "0" INPUT VOLTAGE UP TO 1.5 V (HIGH NOISE IMMUNITY)
- 5)OVER TEMPERATURE PROTECTION

GEAR MOTOR



Fig-8

Gear motors square measure complete driver systems consisting of an electrical motor and a discount gear train integrated into one easy-to-mount and -configure package. This greatly reduces the quality and value of coming up with and constructing power tools, machines and appliances vocation for prime torsion at comparatively low shaft speed or rev. Gear motors enable the employment of economical low-horsepower motors to supply nice driver at low speed like in lifts, winches, medical tables, jacks and artificial intelligence. They'll be giant enough to elevate a building or sufficiently small to drive a small clock.

III. FINAL DESIGN OF PROJECT

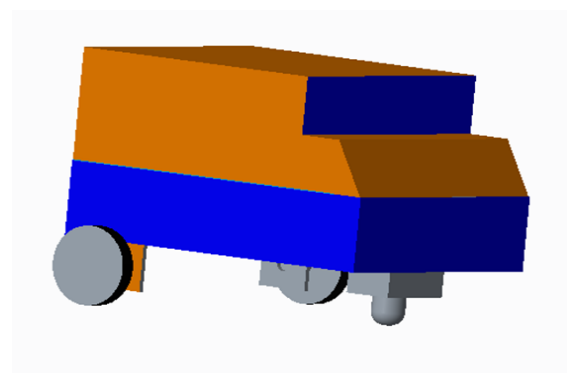


Fig-9

IV. TEST AND RESULT

Cascade the keypad, LCD, driver and microcontroller and check for stability on mechanical structure.

System is stable.

Checked using manual input test if any module is loosely connected.

No module is loosely bounded.

Power the system using power supply and check if proper supply is being obtained in the output of required module.

All modules are being provided their respective power.

Provide the control signal input.

Output is received at the input of driver circuit.

V. CONCLUSION

We have gathered a lot of information on our core subject the mix of electrical, computer, microcontroller programming, through the medium of this project. While doing this project, we tend to had to face several issues however we tend to troubleshooted them one by one. we tend to additionally got at home with the categories of machines within the work-shop, the circuit diagrams of varied modules utilized in this project. these has several applications like Inter-campus file delivery, notices and circulars distribution, relocation chores, guidance system for guests

REFERENCES

1. D. Cho and J. K. Hedrick, "Automotive powertrain modelling for control," J. Dynamic Syst., Measur. and Contr., vol. 111, Dec. 1989.
2. E. Bakker, H. Pacejka, and L. Lidner, "A new tire model with an application in vehicle dynamics studies," SAE paper no.890087.
3. D. H. McMahon, J. K. Hedrick, and S.E. Shladover, "Vehicle modeling and control for automated highway systems," in Proc.1990 Am. Contr. Conf., San Diego, CA, May 1990, pp.
4. L. L. Hoberock and R. J. Rouse, Jr., "Emergency control of vehicle platoons: System operation and platoon leader control," J. Dynamic Syst., Meas. and Contr., vol. 98, no. 3, pp.245-251, Sept. 1976
5. R. W. Allen, H. T. Szostak, and R. J. Rosenthal, "Analysis and computer simulation of driver/vehicle interaction," SAE paper no. 871086, 1988.

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