



# Automatic Car Washing System using AT89C51 Microcontroller

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**ABSTRACT:** Automatic car washing system is very common in developed countries. Car washing system is usually associated with fuel filling stations. It consists of large machines with automated brushes controlled by program logical controllers. Automatic car washing system is fully automated with different stages of foaming, washing, drying and brushing. Different types of car washing systems are discussed in this report. This system uses large quantity of water, thus water recycling plant is also an integral part of the automatic car washing system but at this level we are only presented the car washing only. We studied some of the car washing systems from Internet and decided to do this project. As compared to the foreign countries this system is used in very less no of cities in India because of its cost and complexity. But we have tried to minimize it according to the device list which will be definitely helpful for our project.

**KEYWORDS:** AT89C51 Microcontroller, Relay, etc

## I.INTRODUCTION

Car washer is single activity done in mandate to keep the external of the car clean. Mostly it is done manually in locomotive garage, this manual way of cleansing car arise in more waste of water, manpower and time. The automatic car washer system diminishes the utility of water and also manpower need. Our car washer system utilizes control using microcontroller. There are three procedures involved in our car washer system namely wash, cleansing and drying. Cycles of washer includes wash with detergent, and then with water [1].

Automatic car washing system is very common in developed countries. Car washing system is usually associated with fuel filling stations. It consists of large machines with automated brushes controlled by program logical controllers [2].A microcontroller is a programmable logical controller which is a type of microcontroller. The automatic car washing using conveyer belt system is already in market. In our project we are using pressure cylinder to lift the car [3]. Automatic car washing system is fully automated with different stages of foaming, washing, drying and brushing. Different types of car washing system sure discussed in this paper. This system uses large quantity of water, thus water recycling plant is also an integral part of the automatic car washing system but at this level we are only presented the car washing only.

Contactless washing solution is used quit frequently because it does not produce scratch less and does not destroy gloss finish. Using high pressure water jets without sponge and brushes good results are obtained for removing direct the combination of the high pressure jet of hot water and detergent wash method is best kept this lake by car. Thus the investment in an the automatic installation, it is a good solution comprised to manual washing.[4]

## II. LITERATURE REVIEW

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recycling plant is also an integral part of the automatic car washing system but at this level we are only presented the car washing only. [2]

This Paper present work an Automatic car washing using a Micron roller based paper. A microcontroller is a programmable logical controller which is a type of microcontroller. The automatic car washing using conveyer belt system is already in market. In our project we are using pressure cylinder to lift the car. Our project is prototype in which a carpenters a washing station and automatically gets clean up. We are using various components in this project such as pressure cylinder, dc motor, brushes and dryer. This entire component is controlled using microcontroller. [3]

### III. BLOCK DIAGRAM

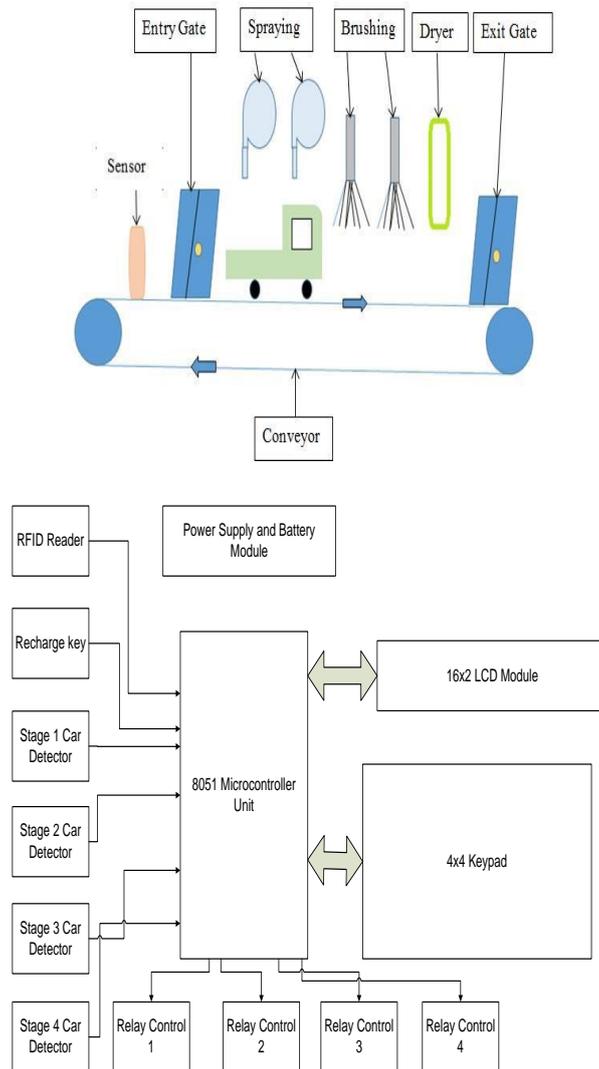


Fig.1: Block diagram of Automatic car washing system

Some car washes have their customers pay through a computerized pos, point of sale unit, also known as” Automatic cashier” which may take the palace of a human cashier. In that mechanism input is get that RFID reader. When the sale is automated, the customers sensing the card, which the every person has, separate the RFID reader number and it has its own password. In that when the RFID reader is sensing then the automatically the payment will cut and the car gets ready to wash. so the wash knows what each car purchased. After pulling the entrance an attendant usually guides the customer on to the conveyor, at some washes the car getting to every stage of washing and correct number of rollers automatically based on stages.



LCD display indicates that which car is entering, microcontroller attaches to the every part of the motor and the relay part of the proximity sensor. The all components get ready to work and moving the conveyer belt and the car automatically around the conveyer and all stages are done.

#### SYSTEM OPERATION:-

The automatically car washing is intelligently programmed to clean a outside of the car throw the different stages assembly. In our project AT89C51 microcontroller is used with help of this controller it interfaces LCD display , oscillator circuit , 4 channel relay , IR sensor and motor drive which rotates the conveyer belt and DC motor. The microcontroller has 40 pins the inputs are connected to the interfacing the all devices. Also relay is used in circuit which is 4 channels and it connected to 4 different stages of the car washing system and connected the pins VCC, ground (GND) and relay port in microcontroller. LCD display and the trigger circuit and relay which is connected to the port of the microcontroller. The 4 sensors are connected to the relay. First initialize the RFID reader and display the LCD like the signed and unsigned customer. The microcontroller and relay circuit is turned on. When car is detected the 4 steps is automatically turn on simultaneously. When all the steps get the motor will automatically off.

#### MICROCONTROLLER:-

The 8051 is a low-power, high-performance CMOS 8-bit microcomputer with 4K bytes of Flash programmable and erasable read only memory (PEROM). The device is manufactured using Atmel's high-density nonvolatile memory technology and is compatible with the industry standard MCS-51 instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in system or by a conventional nonvolatile memory programmer. By combining a versatile 8-bit CPU with Flash on a monolithic chip, the microcontroller 8051 is a powerful microcomputer which provides a highly-flexible and cost-effective solution to many embedded control applications.

**Conveyor belt:** A conveyor system is a common piece of mechanical handling equipment. That moves materials from one location to another. Conveyors are especially useful in applications involving the transportation of heavy or bulky materials. Conveyor systems allow quick and efficient transportation for a wide variety of materials.

**Motor:** - In a dc motor, armature rotates inside a magnetic field. The basic principle of DC motor is that whenever a current carrying conductor is placed inside a magnetic field, there will be mechanical forces experienced by the conductor. Generally all dc motors work on same principle. In our project, we are going to use 24 V DC relay. We are going to use two dc motors for moving the conveyer belt.

**Relay:** - A relay is an electrically operated switch. Many relays use an electromagnet to mechanically operate a switch, but other operating principles are also used, such as solid-state relays. Relays are used where it is necessary to control a circuit by a low-power signal (with complete electrical isolation between control and controlled circuits), or where several circuits must be controlled by one signal.

**IR Sensor:-** IR LED emits infrared radiation. This radiation illuminates the surface in front of LED. Surface reflects the infrared light. Depending on reflectivity of the surface, amount of light reflected varies. This reflected light is made incident on reverse biased IR sensors.

#### ADVANTAGES:-

1. The Whole system is automatic so no manpower required.
2. Very less maintenance.
3. Comparatively cost of system is less.
4. No. more space required.
5. No. environmental pollution.

#### LIMITATIONS:-

1. .Electric Power Will Require Running the System.

#### APPLICATION:-

1. Car showroom.
2. Highly population areas.
3. Car body building Industries.
4. In car manufacturing companies after final assembly of car.



5. In service stations.
6. Car replacing and maintaining stations.

#### IV. RESULT

This was the replacement of pushing now days latest advantages in science have made it possible to achieve great reliability and efficiency in the automatic car washing system. In Automatic car washing system, we performed all the operations needed to clean the car successfully by using microcontroller after achievement of the above processes by mechanism of this system car washing will be cost effective, time saving and pollution free. By using this process we can clean up the car up to 95%.

#### V. CONCLUSION

Putting all discussions together, one can conclude that the proposed method for controlling automatic car wash removes restrictions that exist on common systems and introduces a unique way to create error-free and highly efficient project. This prototype will help to perform car washing automatically and results in high quality end product. It requires less man power, time and no pollution.

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