

Voice Controlled Water Control system using Arduino

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Abstract - As you may know, automatic control for a water tap can significantly reduce water consumption to some extent. This project tries to review from different point of view. The project controls the flow of water using the voice commands. Our idea is to apply a proper water management technique in our homes and agriculture our aim to save water from leaky and running taps by automating our domestic tap. A large number of research papers have been published on water control system,

Key Words: Arduino, Voice module, Solenoid Valve, Relay, Battery

1. INTRODUCTION

Water is the one of the most important parameter in life, without water life is impossible; almost all aspects of human life have undergone rapid development. This type development is supported by the advance of electronics and information technology. The job can be performed on schedule precisely and efficiently by adopting this advance technology. In everyday life, there must be some physical elements that need to be controlled in order for them to perform their expected behaviors. A control system therefore can be defined as a device, or set of devices, that manages commands, directs or regulates the behavior of other device or system.

The automatic controlling involves designing a control system to function with minimal or no human interference. Intelligent systems are being widely used in a wide range of fields including from medical sciences to financial sciences, education, law, and so on. The monitoring of the water level in a reservoir is important in the applications related to agriculture, flood prevention, and industry, etc.

2. Project Objective

The main objectives of proposed system to design and implement voice control water control system using Arduino

3. Block diagram

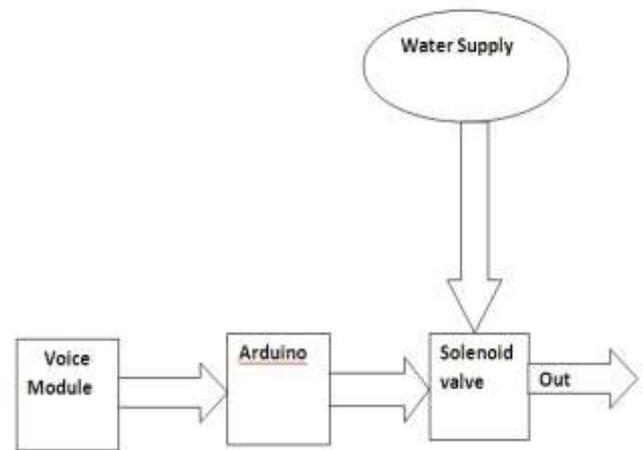


Fig.1 Block Diagram.

4. Methodology

When we given command to Arduino it can check the input command in the form of voice stored in build library and pass to the relay.

Relay can work as switch it pass to the signal to the solenoid value it can convert electrical signal to mechanical and open the valve water is pass

A. Components used

1. Arduino :

We have use the arduino mega 2560, Arduino is one of the electronic device it used in every where. Arduino is one of the open-source platform used for building electronics projects. Arduino is a microcontroller which is used to read the sensor values. Current sensor is connecting to the Arduino. While Keeping in mind the economic parameters and its simplicity, Arduino Uno has been used which reduce the programming complexity. Analog pins are used to sense analog voltage and current. With the help of these values, monitoring solar power system.

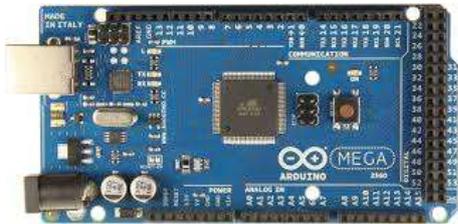


Fig.1 Pin diagram of Arduino Uno

2. Voice module v3

We have use the voice recognition module and it is electronic device which can accept the various human voice which can supports up to 80 voice command it speaker dependent voice recognition module .maximum 7 voice command can work at time, it has required sound could be trained as command, voice module board has 2 controlling ways: Serial Port is also known as full function and General Input Pins known as part of input pin. General Output Pins on the v3 model could generate several kinds of waves while corresponding voice command was recognized.



Fig 2 Voice Module V3

3. Solenoid value :

Solenoid valve is the one of essential component and it called as electromechanical device and it work as generate magnetic field use of electric current so this mechanism regulates the opening of fluid flow in a valve.

Solenoid valve function as the electric current they use, the strength of the magnetic field they generate, the mechanism they use to regulate the fluid, the type and characteristics of fluid they control. Solenoid valve as also one of the mechanism varies from linear action, plunger-type actuators to pivoted-armature actuators and rocker actuators. The valve can use as a two-port design to regulate a flow or use as a three or more port design to switch flows between ports. Number of solenoid valves can be put together on a manifold.



Fig 3 Solenoid Valve

4. Relay

We have use the relay in this project , work of relay is just like switch and in detail we have explain The diagram shows an inner section diagram of a relay. In relay iron core is surrounded by a control coil. As shown in the diagram, the power source is given to the electromagnet through a control switch and through contacts to the load. In relay when current starts flowing through the control coil, the electromagnet starts energizing and thus intensifies the magnetic field. In relay there are main four parts which can be electromagnet, movable armature, sitchs point contact and spring etc.

It is an electro-magnetic relay with a wire coil, surrounded by an iron core. In relay path of very low reluctance for the magnetic flux is provided for the movable armature and also the switch points contact. The movable armature is connected to the yoke which is mechanically connected to the switch point contacts.

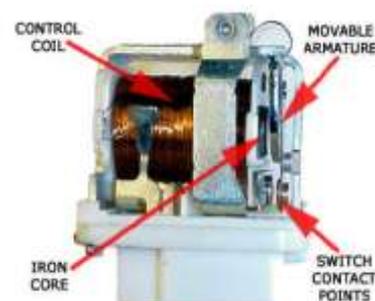


Fig. 3 internal structure of relay

5. Battery

Battery is a device which is used to store the charge. Here, battery is used to supply a charge to the motor to obtain expected output from the motor. The battery is used as per the motor requirements to achieve optimized output. We are going to use a battery that is dry cell of 12 V capacity of voltage.

- Voltage – 12V
- Capacity – 24 Ah

- Type – Zinc Ion Battery



Fig-1: Battery

Conclusion

Water is one of the necessities of life. Every government in every country is emphasizing on avoiding water wastage. It will greatly reduce the water wastages if it will be implemented in especially government offices and departments, private industries, hotels and even in homes.

Future scope

We know that water is one of the essential part in the life, we know that the Government as organize various camp to save water our aim to save water as much as possible

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BIOGRAPHIES



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