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Embedded based agriculture monitoring system for gatevalves using GSM And android application

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***Abstract*- Our project is to open and close the gate valves using android applications. As the name suggested that monitoring system is for controlling the valves from remote place. Our target is to operate the valves from different place by SMS while it is in ON or OFF condition. Mobile phones have almost become an integral part of us serving multiple needs of humans. GSM network is everywhere in our country that's why we choose GSM network operate valves and also transfer information through it. We also use GSM network because, if we use it then we don't need to establish extra equipment for networking. Therefore we present in this paper is best of our knowledge for the GSM based agriculture monitoring system for gate valves.**

Keywords—Gate Valve, GSM Module, Andriod, Wiber Motor, Microcontroller.

I. INTRODUCTION

Agriculture has been the most important practice from very beginning of the human civilization. At the present era, the farmers have been using irrigation technique in India through the manual control in which the farmers irrigate the land at the regular intervals. This process sometimes consumes more water or sometimes the water reaches late due to which the crops get dried. It has seen many iterations of development in technology with time. A good agricultural practice is still an art. Traditional way of farming is unable to cope with the environmental changes. Good control over environmental parameter can lead to increased yield of crop. We enrich this tool to reduce the work of man power and for effective monitoring. We use GSM system here to increase reliability of the network and save the cost of networking equipments.

II. SYSTEMHARDWARECOMPONENTS

The overall system configuration is briefly represented in this section and the hardware used in this research and the physical integration of the components are also described.

A.PIC Microcontroller

The PIC 16F877 (Microchip Technology, Inc., www.microchip.com) 8-bit microcontroller was chosen to obtain the analog data from the LM35 temperature sensor and process this data and output the command to drive the unipolar Wiper motor connected to the expansion valve. This microcontroller has a 25 MHz processor (the current compiler runs the processor at 20 MHz), 33 input/output (I/O) pins, (8k*14words) of Enhanced FLASH program memory, (386*8bytes) of RAM, (256*8bytes) of data EEPROM. The PIC does not have an operating system and simply runs the program in its memory when it is turned on. This PIC microcontroller has several hardware features that are very useful and motors with the microcontroller.

B.Wiper Motor

Wiper Motor, the power source of the wiper blade, is the core of the whole wiper system. Therefore, the quality of the wiper motor must be guaranteed to ensure its performance. The wiper motor is a permanent-magnet direct current (DC) one. It is equipped on the front windscreen glass with the mechanical parts of the worm gear. The worm gear functions to slow down and increase torque. Its output shafts spur fourbar linkage, by which the movement is changed from rotary to swinging.

Inside the Wipers

The wipers combine two mechanical technologies to perform their task:

Acombinationelectricmotorandworm gearreduction provides power to the wipers.

A neat linkage converts the rotational output of the motor into the back-and-forth motion of the wipers.

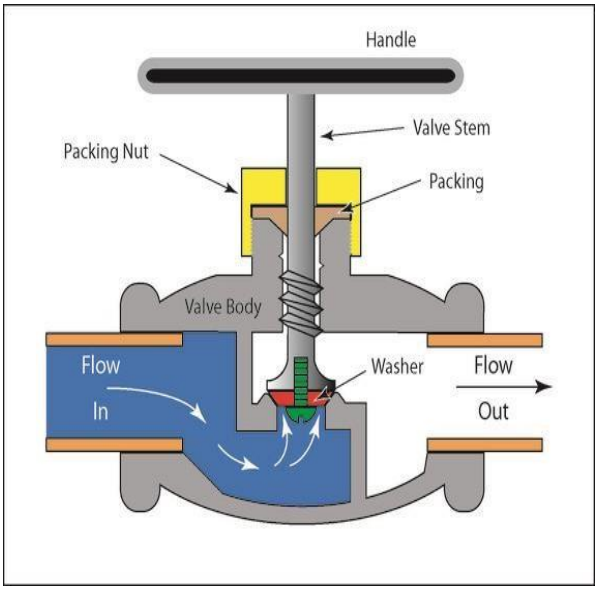
Motor and Gear Reduction

It takes a lot offorceto accelerate the wiper blades back and forth across the windshield so quickly. In order to generate this type of force, aworm gearis used on the output of a small electric motor.

The wormgear reductioncan multiply thetorqueof the motor by about 50 times, while slowing the output speed of the electric motor by 50 times as well. The output of the gear reduction operates a linkage that moves the wipers back and forth.

Inside the motor/gear assembly is an **electronic circuit** that senses when the wipers are in their down position. The circuit maintains power to the wipers until they are parked at the bottom of the windshield, then cuts the power to the motor. This circuit also parks the wipers between wipes when they are on their intermittent setting.

C. Gate Valve



The advantages of gate valves are,

Good shutoff features, Gate valves are bidirectional ad therefore they can be used in two directions ,Pressure loss through the valve is minimal

III.SYSTEMSOFTWARECOMPONENTS

A.GSM Technology

GSM is a global system for mobile communication GSM is an international digital cellular telecommunication. The GSM standard was released by ETSI (European Standard Telecommunication Institute) back in 1989. The first commercial services were launched in 1991 and after its early introduction in Europe; the standard went global in 1992. Since then, GSM has become the most widely adopted and fastest-growing digital cellular standard, and it is positioned to become the world's dominant cellular standard.

Today's second-generation GSM networks deliver high quality and secure mobile voice and data services (such as SMS/ Text Messaging) with full roaming capabilities across the world. GSM platform is a hugely successful technology and as unprecedented story of global achievement. In less than ten years since the first GSM network was commercially launched, it become, the world's leading and fastest growing mobile standard, spanning over 173 countries. Today, GSM technology is in use by more than one in ten of the world's population and growth continues to sour with the number of subscriber worldwide expected to surpass one billion by through end of 2003.

Today's GSM platform is living, growing and evolving and already offers an expanded and feature-rich 'family' of voice and enabling services.

The Global System for Mobile Communication (GSM) network is a cellulartelecommunication network with a versatile architecture complying with the ETSI GSM
900/GSM 1800 standard. Siemen's implementation is the digital cellular mobile communication system D900/1800/1900 that uses the very latest technology to meet every requirement of the standard. The following GSM generation passed in 3decades:

1G	Analog Communication
2G	Digital Communications
2.5G	GPRS
2.75G	EDGE
3G	Enhanced feature of Video call
4G	High-speed Wireless Broadband

Subsystem communicate across the Um interface, also known as the air interface or radio link. The Base Station Subsystem. It is seen from te above potion that the microcontroller receiving signal from the signal conditioning circuit operates the relay. Same time the microcontroller sends a command to a signal sending MS to send a signal to the transmitter mobile station whether the motor is in on or off state.

CONCLUSION

Design such a project and implement it, we gather great practical experience. We tried to implement our theoretical knowledge successfully. This course teaches us about the far difference between theoretical and practical knowledge. This project increases our ability to work as a group and it helps us in future life. But we face several problems because of unavailability of quality goods, technical support and inexperience. Despite that we enjoyed our work very much and successfully finished that work in perfection. We hope our project can bring dynamic change in agriculture.

GSM NETWORK

A GSM network is composed of several functional entities, whose functions and interfaces are specified. The GSM network can be divided into three broad parts. The Mobile Station is carried by the subscriber. The Base Station Subsystem controls the radio link with the Mobile Station. The Network Subsystem, the main part of which is the Mobile services Switching Center (MSC), performs the switching of calls between the mobile users, and between mobile and fixed network users. The MSC also handles the mobility management operations. Not shown is the Operations and Maintenance Center, which oversees the proper operation and setup of the network. The Mobile Station and the Base Station

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