

# A Review on Pump Alarming System - Ping Me Pump

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**Abstract:** In this paper we have shown how to monitor the water level of water system such as bore wells and ground water remotely. We have also shown that how to control the working of pump automatically and remotely. It can also be used to monitor the water level and send the information to smart phone wirelessly. This project is designed to monitor the water level with the help of ultrasonic sensor, Arduino, relay and GSM technology. In this monitoring system, the water level is calculated instantaneously using ultrasonic sensor and the pump is automatically turned OFF when it is below the specified level and we will get the alert notification through smart phones. When the water reaches above the specified level we can switch ON the apparatus by using smart phones. This approach would help in reducing the damage to the motor drive and power consumption.

**Keywords:** GSM technology, Pump alarming system, Water level detection.

## 1. Introduction

In this project we have shown that the water pump dry run guard that works as an effective solution for protection of household submersible water pumps against dry running. Minimum water-level monitoring feature in the circuit is realized using suspended sensor to ensure that the water pumps will not run under a dry condition. In recent years mobile phones have been used for mobile voice control, traffic management and control, wireless transfer of images from a digital camera to the Internet, successfully. A prototype of a home appliance control system with Bluetooth and a cellular phone has been built. An electronic system for telemetry and control applications of distributed systems has been designed. The system is controlled with a mobile telephony communications system. A remote control system for water pumping stations has been implemented by means of a GSM cellular communications system. Wireless Sensor networks are the key to gathering the information needed by smart environments, whether in buildings, industrial, utilities, home, shipboard, transportation systems automation, or elsewhere due to the ease of installation, self-diagnosis, self-identification, reliability, availability as well as maintenance, time awareness for coordination with other nodes, some software functions and DSP, standard control protocols and network interfaces and the affordable price of sensors. Water is commonly used for household purposes, irrigation, industry and electricity.

Therefore, efficient use and monitoring are done.

## 2. Working

In this project we utilize the ultrasonic sensor to detect precise level of water present in the borewell. We are using an Arduino board as brain for this project and a GSM module to send and receive SMS.

### 1) Ultrasonic Sensor

Ultrasonic sensors are reliable, cost-effective instruments for these applications (Fig.1). In operation, the sensor is mounted over the water. To determine the distance of the water, it transmits a sound pulse that reflects from the surface of the water and measures the time it takes for the echo to return.

### 2) GSM Module

GSM (Global system for mobile communication) is a globally accepted standard for digital cellular communication. GSM offers various types of services: dual tone multi frequency (DTMF), short message services, cell broadcast, voice mail, fax mail etc. GSM can be used as the communication to receive and transmit signals captured by machines in remote places, and also to send these signals to remote machines.

### 3) Relay

It works on the principle of an electromagnetic attraction. When the circuit of the relay senses the fault current, it energizes the electromagnetic field which produces the temporary magnetic field. This magnetic field moves the relay armature for opening or closing the connections.

Table 1  
Components

Name	Model
Ultrasonic sensor	HC-SR04
Relay	5V, Dual channel
GSM module	SIM800A
Jumper	Male to male, male to female, female to female

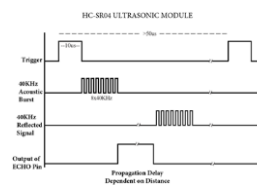


Fig. 1. HC-SR04 Ultrasonic module

### 3. Conclusion

This paper presented an overview on pump alarming system.

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