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Automatic DOL Starter with Mobile Control

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ABSTRACT: Implanted system-based submarine engine control to avoid overload, test run and one-time staging GSM for Agriculture Irrigation project work that can be used to control and screen a sub-engine used for an agro-commercial water system using a GSM organization. This task adds to the development of the mobile phone as a control application for submotor siphons used in the agro-commercial water system. Engine alliances rely on traction; it could very well be Direct on line or Star Delta. The motor is limited by the miniature controller and detects the current state of the motor and consequently limits it without anyone else and sends the data to the comparator via a GSM organization. The GSM mobile phone is used to switch off via a message or a missed call and to send a message to the engine and the owner about the three related errors. A miniature controller is used to distinguish three types of defects that damage the engine The first is where there is no single-stage supervision, and in the event that this happens, the miniature controller will stop the engine as a result. The miniature controller also includes protection against overcurrent or overload as well as dry running. It's normal for farmers to like this app, and it provides undeniably easy access to the engine. Each of these control processes is implemented using a PIC microcontroller, GSM, and various interface and control circuits.

KEYWORDS: Microcontroller, GSM, SMS, Current, Voltage, Motor and Irrigation

I. INTRODUCTION

India is basically a horticultural nation and all its tools depend on agricultural achievements. With the rapid development of the Indian agricultural business, a number of programmed innovations have been introduced into horticultural creations. Absolute precipitation may be incomplete or poorly coordinated in a given region. To achieve the highest yield, it is essential to ensure the ideal amount of water and follow proper water planning. This can only be imagined through a systematic water system by collecting water during heavy rainfall and delivering it to yield as needed. A water system is the science of designing and designing an efficient, minimal-cost, financial water system framework, adapted to regular conditions. By developing an appropriate dissemination framework, the yield of the controlled water supply can be increased. The various strategies for water supply to arable land are the surface water system, the groundwater system, and the irrigation water system. The deposited or transferred water enters rural areas through some reasonable circulatory framework.

Since then, there is a growing need for a stubborn water system framework. The essence of this business is to promote a knowledgeable layout that gives control to the rating engines via mobile phones using missed calls and messages. The planet's versatile client is producing a gigantic ascent in more than a few years. Remote monitoring of cycles, machines, and more is well known due to the development of innovation and the reduction of equipment costs. Remote monitoring via Internet-based control is a standard methodology. This method requires PCs (client / server) and extra modules such as modems, support, and more for web accessibility and programming support for TCP / IP conventions and communication with the control framework. The cost of such a framework shifts enormously depending on the needs for speed and transmission capacity, and consequently is usually supported in bioclinical and modern applications where increased information flow is required. Mobile networks provide Short Message Service (SMS) and Multimedia Messaging Service (MMS), the approach offers a simple interface with only an objective mobile phone address and message requirements, with virtually no header / convention additional cost. Accordingly, this strategy is reasonable for remote monitoring of moderately complex frameworks. Remote sensor networks also provide freedom for remote monitoring.

II. LITERATURE SURVEY

The versatile control application is designed to control the engine to reduce the risk to farmers. The engine can be switched on and off physically or by using a mobile phone by sending a message or a missed call. The purpose of the embedded framework-based control board is to control and screen the motor for various known deficiencies. Essentially, in a rural water system, the motor is associated with the control panel. The control panel, which includes a

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microcontroller, scans the engine inventory and controls the operation of the engine, i.e., the control panel actually examines commonly known problems and corrects them to protect the engine from damage. Known deficiencies that may occur include shifting, running the engine dry, overloading, and ignoring the section. As a result, the motor turns when power is restored. The microcontroller controls the operation of the starter depending on the sensor data. At the point when the momentum is low, or if water does not flow in the line after a certain period of time due to a fault in the motor or starter, or when there is no water level in the well, the motor will naturally stop and the problem is from GSM messages through the homesteads. GSM is connected to the microcontroller via the RS232 interface. The client can handle the trigger using missed calls when needed or under unusual circumstances. Missed calls are received by the customer in a variety of ways to fulfill an explicit order. In the light of the received signals and sensor states, the signals are delivered from the microcontroller to turn the motor on / off via the starter using the transmissions. Transmission is restricted by ports.

III. SYSTEM DEVELOPMENT

A DOL starter (also known as a direct line or transverse starter) is a way to start a 3-phase induction motor. In the DOL starter, an induction motor is connected directly to the 3-phase supply, and the DOL starter connects the entire mains voltage to the motor terminals. Despite the direct connection, the motor is not damaged. DOL includes motor starter protection devices and, in some cases, condition monitoring. The wiring diagram for a DOL starter is shown below

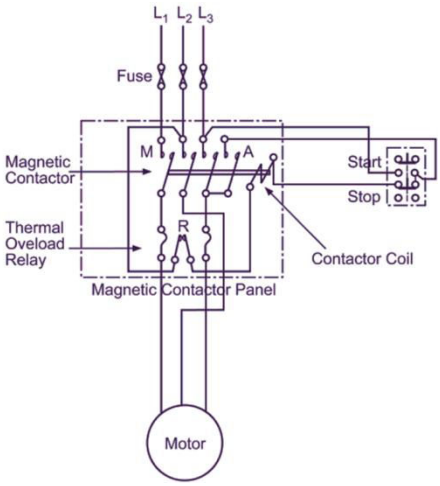

Figure 1

Because the DOL starter connects the motor directly to the main supply line, the motor consumes a very high inrush current (up to 5-8 times higher) than the total load current. The value of this high current decreases as the motor reaches its rated speed.

Components used:

1) Atmega 8
2) 16 mhz crystal
3) 33 pf capacitor
4) 5v hilink power supply
5) Lcd 16x2
6) Bc547
7) 4.7k resistor
8) 5v suger box relay
9) Sim800l

1) AT Mega 8: The ATmega8 is a low-power, 8-bit CMOS microcontroller based on the AVR RISC architecture. By executing efficient instructions in a single clock cycle, the ATmega8 achieves a baud rate close to 1 MIPS / Mhz,

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allowing the system designer to optimize power consumption as a function of processing speed.
The AVR Microcontroller stands for "Advanced Virtual RISC" and the MCU stands for the microcontroller. A microcontroller is a tiny computer on a single chip and is also called a control device. Like a computer, a microcontroller can be programmed with a number of peripherals, such as input and output units, memory, timers, and serial data communication. Microcontroller applications include embedded applications and automatically controlled devices such as medical devices, remote controls, control systems, office machines, power tools, electronic devices, and more. There are different types of microcontrollers on the market, such as the 8051, PIC and AVR microcontrollers. This article provides brief information about the AVR Atmega8 microcontroller

2) 16 mhz crystal: Miniature 16 MHz quartz crystal in a hermetically sealed HC-49 / S housing as a crystal oscillator resonator. The crystal oscillator is based on a slight deformation of the quartz crystal by an electric field, a property called electrostriction or inverse piezoelectricity.

3) 33 pf capacitor: A capacitor is an electrical device that stores energy in the form of an electric field. It consists of two metal plates separated by a dielectric or non-conductive material. Capacitor types are widely divided based on fixed capacitance and variable capacitance. Fixed capacitors are the most important, but there are also variable capacitors. These include rotating or trimmer capacitors. Fixed capacitors can be divided into film capacitors, ceramic capacitors, electrolytic capacitors and superconducting capacitors. The ceramic capacitor is described in more detail in this article. Ceramic capacitors are most commonly found in all electrical devices and use a ceramic material as the dielectric. A ceramic capacitor is a non-polarity device, which means they have no polarity. This allows it to be connected to the circuit board in any direction. Because of this, they are generally much safer than electrolytic capacitors. The symbol for a non-polarized capacitor is shown below. Many types of capacitors, such as tantalum beads, have no polarity.

4) 5v hilink power supply: The HLK-PM03 AC / DC converter can supply 3.3 V from 110 VAC or 220 VAC. This makes it perfect for small projects that require a 3.3 V power supply from the mains. You can also get a 5 V output using the HLK-PM01. To supply the ESP8266-01 from mains voltage, 3.3 V is provided to the VCC terminal using the HLK-PM03. If you need 5 V to power other ESP8266 models or ESP32 through the VIN terminal, you can use the HLK-PM01, which provides 5 V output and works similarly.

5) Lcd 16x2:They work by using liquid crystals to produce the image. The liquid crystals are embedded in the display and use some kind of backlight to illuminate them. The actual liquid crystal display consists of several layers, including a polarized filter and electrodes. The module requires an external antenna to connect to the network. The module usually has a spiral antenna and is soldered directly to the NET contact on the PCB. The motherboard also has a U.FL connector in case you want to keep the antenna away from the card
6) Bc547:A transistor is basically an electrically controlled switch. There is an input, an output, and a control line called an emitter, collector, and base. When the control line (basic) is tripped, it connects the emitter and the collector like a switch. Because the power between the emitter and the collector can be greater than the base, transistors are often used as amplifiers. The BC547 is an NPN transistor, which means that when power is applied to the base (control pin), it flows from the collector to the emitter. Typically, NPN transistors are used to "ground" a device, which means that they are placed in the circuit after the load.

7) 5v suger box relay:A relay is a type of electromechanical component that acts as a switch. The relay coil is DC so that the contact switches can be opened or closed. A single-channel 5 V relay module typically includes a coil and two contacts, such as normally open (NO) and normally closed (NC). This article discusses the overview and operation of the 5V relay module, but before discussing what a relay module is, we must first know what the relay is and its contact configuration. A 5V relay is an automatic switch commonly used in an automatic control circuit and uses a low current signal to control high current. The relay signal input voltage is between 0 and 5 V.

8) Sim 8001**:** At the heart of the module is the SimCom SIM800L GSM cell chip. The chip has an operating voltage of 3.4 V to 4.4 V, making it an ideal candidate for direct LiPo battery power. This makes it a good choice for embedding in projects without a lot of space. All required data pins on the SIM800L GSM chip are extracted into 0.1-inch headers. This includes the contacts required to communicate with the microcontroller through the UART. The module supports data rates between 1200 bps and 115,200 bps with Auto-Baud Recognition

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IV. RESULT

This dol starter starts with the help of mobile.

V. CONCLUSION

Thus, the created framework ideally updates the motor control in the field using GSM remotely. The frame guarantees protection of the motor against overload, overheating, dry running and uneven characters on the stage. It provides a mechanized restart in the same way, provided that typical conditions are restored, such as at the point where a legitimate energy rebuild takes place. The significant benefits of this framework are the uniform distribution of water through standard openings, the reduction of labor costs, the compensation of unwanted water spills, the minimization of engine failure events and the proposal to culminate the order. The use of mobile phones has become more common among farmers and, as a result, has become more exploited. In the end, the framework is an incredible help for farmers whose siphon kits are located far from their home, as the controller can use a wireless connection and refers to any strange circumstance. The framework is designed to include a PDA with built-in protection against unapproved customers. Any PDA model can be used for mail, so the framework works on its versatility. The low labor cost of using messages and missed calls is the main attraction of this framework.

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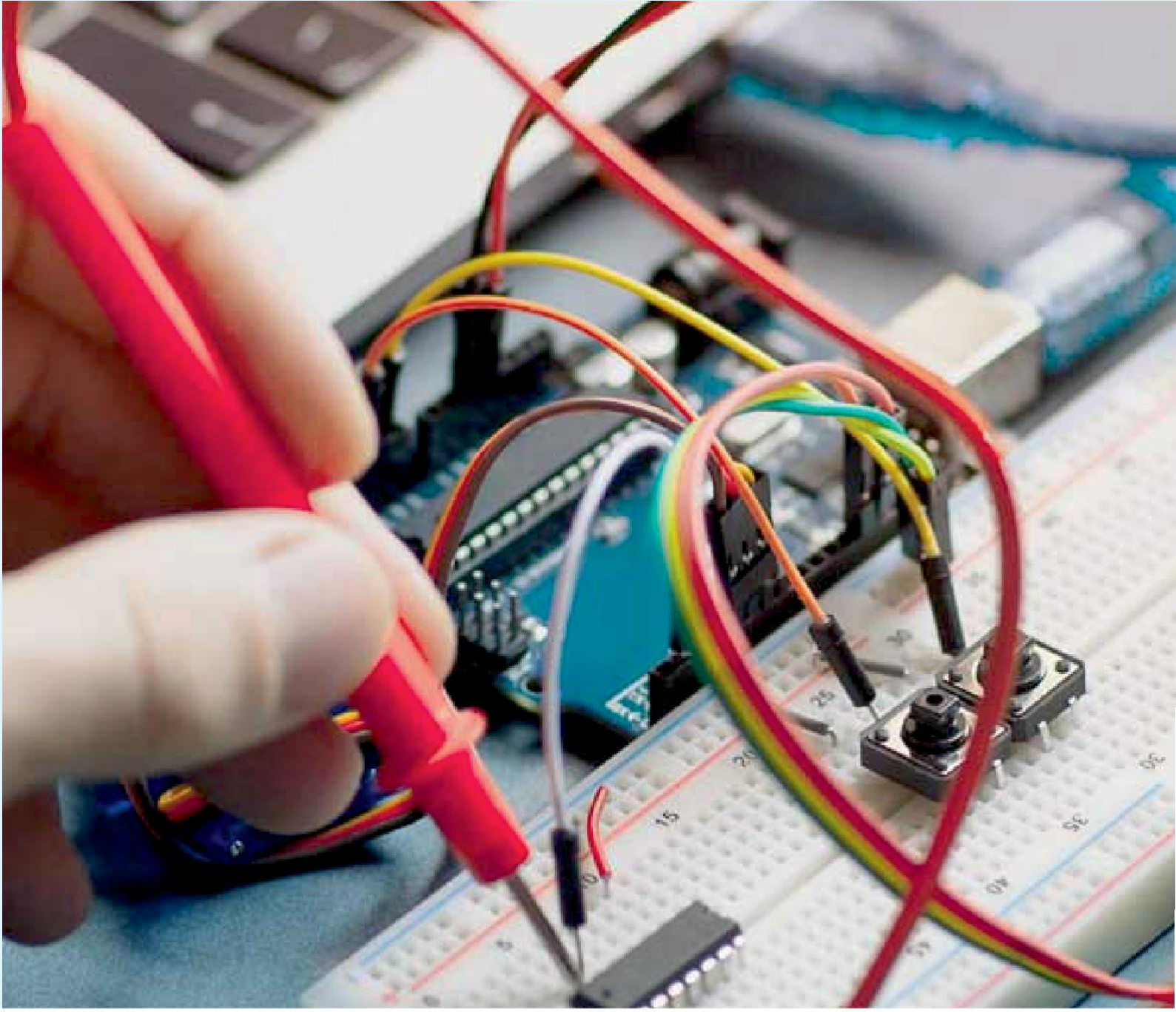

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