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# Design and Interfacing Induction Cooker with GSM

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*Abstract: After a review of the present-day advancements in wireless automation systems, the paper introduces an efficient and economical automation system based on GSM technology. The recommended system uses as a central microcontroller which is uncostly, rapid and can perform same functions as PIC microcontroller. The system will allow remote control of different appliances through command messages. In addition, in case of any wrong or warnings expose by the system, a command message will be send directly to the owner of the system.  The holder of the system can appeal status reports from the system at any time. The system is designed to be highly capture, adjustable, careful and popular.*
*Keywords: Automation, Control System, command, GSM, Microcontroller.*

## I.    INTRODUCTION

Within the addition of wireless technology, presentation of remote control based devices and gadget have become the harmony of the daylight. The ambit of such applications ranges from a remote controlled small car toy or a TV to a system that can control a whole building or a factory. Such systems are associate to as Automation Systems.  Automation Systems perform by allowing a number of devices to communicate with a central controller which in turn communicates all knowledge to the user or the owner of the system as per the instructions and the structure of the system.  The function of such automation systems could be in distance such as heating, lighting, security, energy management, audio and video systems, health monitoring, and entertainment and so on. As part of the remote charge process of automation systems, there are various communication links that can be used such as RF, GSM etc. In this condition, this paper advance a unique method of automation System based on GSM technology. GSM is an clear, digital cellular technology used for transmitting mobile tone and data services. GSM supports 9600 kbps band rate for command call and data transfers and provides a global range of transmission.  With this feature in view, the paper  attempts to design a system that can interpret command messages and process them effectively, resulting in creating an Automation System that can be controlled wirelessly from anywhere in the world.  Users will be able to guidance their small home appliances or big machineries by sending command messages to the controller. Such a system can save a large amount of money, time and even workforce.  The resultant system will be highly protected, reliable, elastic, user friendly and cost effective. Being a flow area of research, a review of the most recent abstract has been carried out.  The scientific framework and the system design are presented in Section. GSM help to operate globally over the network from any place**.**

## II.    LITERATURE REVIEW

Being a modern addition to the literature, the paper has reviewed a small number of the recent studies which have taken advantage of remote based controls. In a study carried out by Delgado et al [1], the authors have analysed the potential of remote controlled Home Automation Systems and their benefits. Home security is highlighted and consider home automation system which provide a strong security, price effective factor. The study introduced an evaluation procedure for user fuse based on certain factors.   In another study [2], the authors have designed and implemented an internet based home automation system through wireless communication. The study viewed that the main purpose of home automation is to control home devices from a central control point. The study demonstrated that when the control of device is completely directed by gadget, the operation of monitoring and reporting becomes essential. The system included a web page implemented on a web server used as an network to control a number of devices and from which the conclusive system can be monitored.
GSM locate home automation system. The paper make sense of a system that embrace a mobile host controller combined to a number of client modules through GSM. The host controller is a PC with GSM capability and a preinstalled user interface. A simple Home Automation Protocol (HAP) was developed to a boost the conversation between the Host and the Clients. The prototype represent high power configuration of the product.  Graphical User Interface (GUI) make user to friendly to operate and

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accommodate a set of operations including devices registration, control and diagnostic utilities. A similar study [4] presented a low-cost, expandable and secure GSM placed home automation system. The design was based on an Our BT board along with a set of appliances connected to it through relays. A GUI was developed using C#.net program which is compatible with all Windows OS platforms. The program allows the user to access and control a set of home appliances. Hence, this confines the value of the frame of reference to only cell phones with Windows operating system. In another study, [5]the authors have designed and developed a simple and cost-effective automation system that allows somebody to manage home instrument from a computer or a handheld device. The scheme stated that the project was inspired after a gossip with a confined individual who expressed that he would like to be able to open and close the doors on his own. The setup be contained in a host unit with a GUI, a central control unit and a number of clients or target modules. The graphical shopper interface in the owner unit discover with the central control unit through GSM. The conversation between the point schedule and the central control unit is wound up a secured Radio Frequency link.

From the way of looking of the study, the progress run down in the above report need to be looked into from the point of view of efficiency and economy. The systems presented in [2] and [3] were very expensive and the systems described in [4] and [5] lack transmission range, obviously on account of the type of platform that the systems operate. The test is to picture a system that is immune, cost impressive and has a good transmission range. In this context, it would be desirable to refer to a study [6] which is distinct compared to the prevailing approaches. The paper presented an automation system that uses as well as GSM to allow individuals to control apparatus form remote places and declare them about any lapse in the system. The user can control a number of devices just by sending an command message. Also, using GSM, the user and the system can interrelate with each other. The system was designed on PIC microcontroller, and quite similar to the proposed system in this paper, as it uses GSM technology. GSM technical knowledge will provide a great range of transmission. The advanced system, rather, will use as a central microcontroller which is moderate, quick and can perform the same functions as PIC microcontroller.

## III. PROBLEM DEFINITION

A. Only robust material should be used as cookware
B. Heating surface is unbro
C. ken so cannot keep deep cookware.
D. Ordering range is finite. Takes much time to warmness the cookware.
E. After long time use, there will be a cracking of dial.
F. More cost to manufacture and maintenance.
G. No automation for current cookware.
H. Globally we cannot operate induction remotely.
I. We cannot check the status of induction from elsewhere.
J. We cannot operate induction cooker for long range.

## IV. PROPOSED WORK

Automation refers to the use of technologies and mechanics to do work that was already done either manually or to achieve similar duty by extending and unscramble the scope and coverage of such automation. Home automation and industrial automation are types of automation where systems use wireless transmission technologies like GSM to send Commands to a set of applications or machines and hence these machines respond to them accordingly. Preservation in view these factors, the proposed system purpose to be used for household automation as well as for industrial automation. It will use the command messages in the GSM technology as a transmission medium to send Commands to a set of applications. In addition, the system will also use the same scientific knowledge to pass out the user or the owner about any faults in the system or the applications. At any time, we get catched message by the holder of the system by simply sending a status query command to the system. The GSM scientific knowledge has the power of a world wide range in comparison to the other transmission technologies which are usually limited to a range of a few 100 meters. The system block diagram of the proposed system is shown in the coming next figure (Figure 1). The major steps involved in the system development are explained there under.

## V. PREVIOUS WORK-

A. Induction cooker will focus on using electric power for cooking. 1st method-driving current through a resistive element. 2nd method-use of induction to heat the pot directly.

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B.   No remote access to induction cooker.

C.   No automation provided for induction cooker.

## VI.     FUTURE WORK

A.   Higher operating frequencies are possible with minimal changes to the resonant tank & driver circuitry.

B.   The coil design capable of working with this design.

C.   The firmware for control was designed for maximum simplicity to reduce errors.

D.   Highly scalable features provide for advance induction cooker. We can get efficient control over induction cooker remotely.
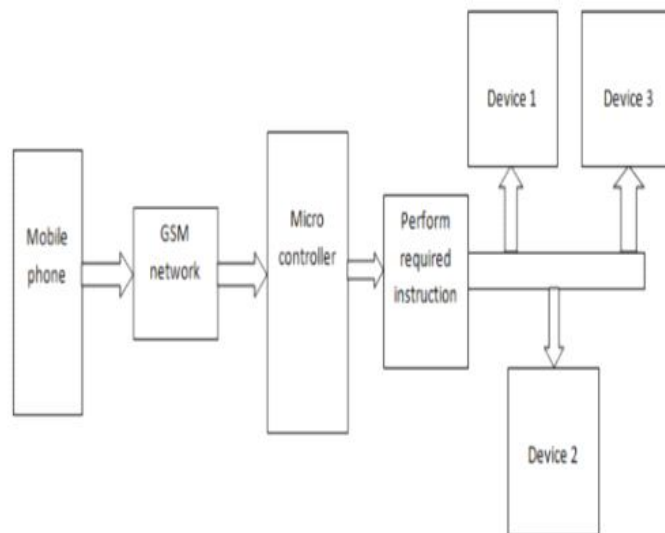


Fig.1-Illustrates the block diagram of the remotely induction cooker system using command.

The Mobile Phone is integrated with our which receives command message from user Mobile Phone and accelerate a act to controller to control even if to turn ON or OFF the output. The Mobile Phone also conveys status announcing to the user regarding the electrical mechanism. The system apply a low cost Microcontroller that is right away available in the market. The advancement of this device involves with both kitchenware and presentation software to fix up with a preferable results. The structure of the system is working with following steps: A) the remote user sends text messages (command) including Authentication information and Commands to the receiver. B) GSM receiver receives messages sent from user cell phone or Mobile phone and send C) The sent messages is decoded by GSM receiver and commands sends by the microcontroller. D)  The microcontroller issues Commands to the appliances. E) Microcontroller issues Commands to the appliances and the devices connected will switch ON/OFF. F)  The Microcontroller checks for completion status and apply operation on Electrical Devices. G)  GSM receiver informs the remote user of the outcome of their request by accelerate a expiration status message back to remote user in the form of another command message. The technologies uses the following arrangements: A) Cellular phone, Networks and Communication protocols: The abroad available circuitry are based on GSM. The network provides a wide area of coverage and can be utilized more cost effectively for this system and communication protocols that are DTMF (Dual Tone Multi Frequencies), command etc., command is the most efficient medium for communication. Mobile phone or Cellular device is required for to create a command. B) Microcontroller and machine is distinguished by I/O interfaces: Serial or parallel I/O will be advised for to connect the GSM receiver and the Microcontroller. Microcontroller put action into unit to implemented to check the electrical appliances (air Conditioner, security system, set top box, light, fan etc). C) Microcontroller System The micro-controller is a microprocessor with provisions for input and output embedded in it. It consists of timers, Analog to Digital Converters (ADCs), Universal Synchronous Asynchronous Receiver Transmitter (USART), etc. It is an 8-bit microcontroller with flash program memory and Electrically Erasable Programmable Read Only Memory (EEPROM). It contains 83-instructions which includes byte operations, bits operations and branching.

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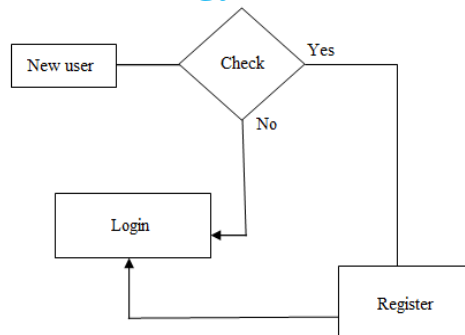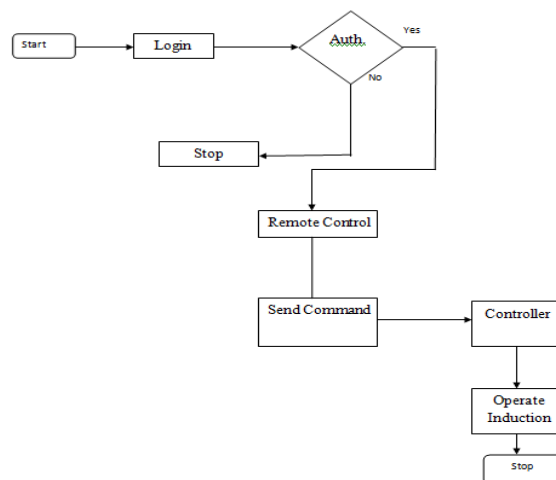


Fig.2-Authentication flow diagram



Fig.3-Induction cooker operating diagram.

This section describes the software development for the command Remote Controller. Our software was used as it is easier to understand, and it is quicker for writing working code. The application software was advanced using a mild aerial level language device in C. The software cutting the sent note from the SIM location at a regular intermission and processes it to control the different appliances connected within the interface. GSM protocol was used to communicate with the mobile phone set. The reciprocity can be used for governing just about all actions of the phone, as well as uploading new firmware. This bus allows command messages to be sent and received. All the peripherals used in the program were first initialized. In the coding, ASCII code was used in acknowledge the coding for accepted and read command message. A declare delete command coding is used to avoid the command interrupt with the previous message. It be found when the microcontroller has borne out the information, the message is being deleted.

Algorithm

Step 1: Start

Step 2: Phone initialization

Step 3: Get Hardware Software

Step 4: Poll Command from mobile phone

Step 5: If new Command received go to step3 else, go to Step1

Step 6: Receive Command

Step 7: Check Command pattern

Step 8: Control the device based on status

Step 9: Notify end use

Step 10: Go to step1

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## VII.    CONCLUSIONS

This paper here and now an cut-rate GSM-based related control system. A number of articles affiliated to the motif of control systems and automation were reviewed and analyzed. According to the proposed system, the owner can be any cell phone and the client is a controller based on controller. The controller is coupled to a GSM modem through an RS232 cable and a level shifter IC. The paper accommodate explanation of the circuit diagram of the proposed system. The project circuit diagram was designed using Proteus v7.7 designing software. Also, a prototype of the system was massed with the required peripheral on a PCB (Printed Circuit Board). The system proved be efficient and practical. The proposed system is practical and powerful in observation with the similar arrangement refined so far.

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