POWER SAVING SYSTEM FOR HOME AUTOMATION

Vignesh.S.S[1], Albert Jose.R[2], Vishnu Shanth.S[3], Rajesh.S[4]

[1, 2, 3] *UG Student, Dept. of Electronics and Communication Engineering, Bharath University, India*
[4] *Asst. Professor, Dept. of Electronics and Communication Engineering, Bharath University, India*

ABSTRACT

Power has reliably stuck around as a springtime need of life as it is unreasonable to representation our life forgot power. Anyhow the main situation, the extent that power is chafed is the utilization at which it is made that is convergence all due date by step by step, and therefore making an excessive amount of weight on the end client as more prominent power bills. Low control usage is a positive preference in this vitality starved world. This Home mechanization venture utilizing inserted framework, pic microcontroller is outlined and built to safeguard the utilization of electrical force and to dodge dissemination is tested here. A Passive Infrared sensor (PIR Sensor) is dispensed close to the passage of the entryway and used to perceive the vicinity of individuals. The PIR sensor yield is transmitted to the Micro controller PIC 16F883, which abruptly controls the gadgets in the room by prudence of a hand-off. The inevitable objective of this task is to spare the vitality or power likewise to develop a Home computerization undertaking utilizing implanted framework, pic microcontroller when nobody is there in the room or house.

Keywords -- ARM7 TDMI-S, Wireless RF module, LPC2129, PIR, LM-35, Select 101, R303A, GSM

I. INTRODUCTION

Unique Intrinsically in home and office machines like light and fan are controlled physically, which prompts power wastage. Despite the fact that there is no utilization then additionally left ON and actually when the apparatuses are being used their operation is definitely not controlled by ecological conditions like temperature varieties and sunlight. By making a keen mechanized controlling framework for apparatuses we can spare the force by some sum. In this paper we are giving an answer for keeping the wastage of force in a satisfactory and expense compelling way. Our framework comprises of a biometric electronic entryway bolt and force sparing module. At the point when the client finger print coordinates in entryway bolt, the force sparing module is exchanged ON. The force sparing module switches the machines in the room in light of the vicinity of the individual. It additionally controls the force conveyed to fan and light as per temperature of room and characteristic light force

II. PROPOSED SYSTEM

In this proposed system, we are giving an answer for keeping the wastage of force in a satisfactory and financially savvy way. The force sparing module switches the machines in the room taking into account the vicinity of the individual. It additionally controls the force conveyed to fan and light as indicated by temperature of room and common sunlight power.

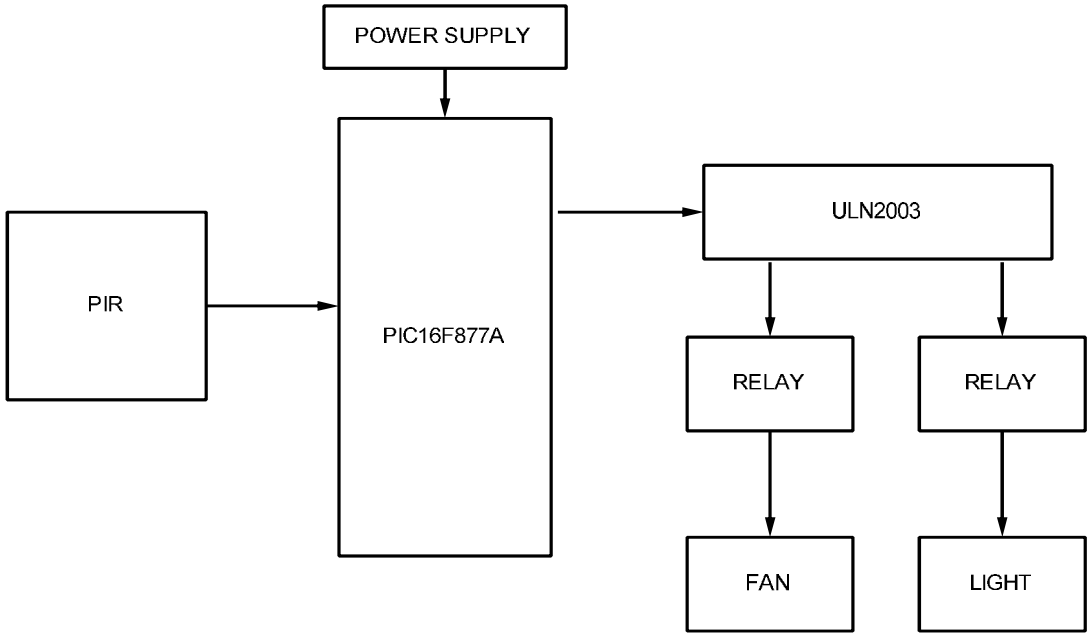


Figure 1 Block diagram of an Introduced System

2.1 Working of the proposed system

Low control usage is a great point of interest in this vitality starved world. This Home mechanization venture utilizing installed framework, pic microcontroller is outlined and developed to protect the utilization of electrical force and to stay away from dissemination is tested here. This home computerization venture utilizing implanted framework, pic microcontroller grabs hold of, over the obligation of dealing with the light, fan, TV and so forth like all the electrical gadgets on the room, when an individual penetrates the room. At the point when a person enters the spot or room, the fan, lights and the other electrical gadgets in the room are discerning or dynamic naturally in spite of the fact that it is exchanged off or end as the last individual takes off. A Passive Infrared sensor (PIR Sensor) is allotted close to the passageway of the entryway and used to perceive the presence of individuals. The PIR sensor yield is transmitted to the Micro controller PIC 16F883, which abruptly controls the gadgets in the room by temperance of a transfer. The consequent objective of this task is to spare the vitality or power likewise to build a Home robotization.

A. PIC MICROCONTROLLER

PIC is a group of altered Harvard structural planning microcontrollers made by Microchip Technology, got from the PIC1677 initially grew by General Instrument's Microelectronics Division. The name PIC at first alluded to Peripheral Interface Controller. The principal parts of the family were accessible in 1976; by 2013 the organization had sent more than twelve billion individual parts, utilized as a part of a wide mixture of implanted frameworks. Early models of PIC had perused just memory (ROM) or field-programmable EPROM for framework stockpiling, some with acquisition for annihilating memory. All present models usage Flash memory for system stockpiling, and more current models permit the PIC to rethink itself. Program memory and data memory are differentiated. Information memory is 8-bit, 16-bit and in most late models, 32-bit wide. Program rules change in bit-number by group of PIC, and may be 12, 14, 16, or 24 bits long. The course set moreover varies by model, with all the more intense chips including directions for advanced sign handling capacities.

B. PIR SENSOR

A detached infrared sensor (PIR sensor) is an electronic sensor that measures infrared (IR) light emanating from items in its field of perspective. They are regularly utilized as a part of PIR-based movement indicators. An individual PIR sensor distinguishes changes in the measure of infrared radiation acting upon it, which varies depending upon the temperature and surface attributes of the items before the sensor .When an article, for example, a human, goes before the foundation, for example, a divider, the temperature by then in the sensor's field of perspective will ascend from room temperature to body temperature, and afterward back once more. The sensor changes over the subsequent change in the approaching infrared radiation into a change in the yield voltage, and this triggers the location. Moving objects of comparable temperature to the foundation however diverse surface attributes might likewise have an alternate infrared emanation example, and accordingly here and there trigger the indicator.

C.MOTOR

In typical motoring mode, most electric engines work through the connection between an electric engine's attractive field and slowing down to produce drive inside the engine. Found in applications as assorted as modern fans, blowers and pumps, machine devices, family apparatuses, force instruments, and circle drives, electric engines can be controlled by direct current (DC) sources, for example, from batteries, engine vehicles or rectifiers, or by rotating current (AC) sources, for example, from the force network, inverters or generators. Little engines may be found in electric watches. Broadly useful engines with exceedingly institutionalized measurements and attributes give advantageous mechanical energy to modern utilization. The biggest of electric engines are utilized for boat impetus, pipeline pressure and pumped-stockpiling applications with appraisals coming to 100 megawatts. Electric engines may be arranged by electric force source sort, inward development, application, kind of movement yield, et cetera.

The AC control circuit gets signal from the microcontroller for changing the terminating edge deferral of the Triac circuit. Fig. 7 demonstrates the piece graph of AC control circuit.

In this way we can spare the force by utilizing control framework.

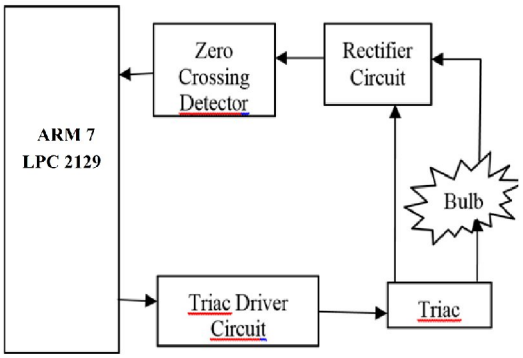


Figure 2 circuits for Power control

The zero-intersection indicator (ZCD) gives high heartbeat at whatever point the AC supply flag crosses the x-turn. The ZCD circuit includes 4N35 and 12Vtransformer. The sign from the ZCD is used to meddle with the microcontroller. In the wake of getting intruded on it sits tight for a time of ending point. After a delay of ending angle(α) the microcontroller triggers the triac through opto-coupler MOC3010. The readings from RF transmitter are utilized to ascertain the terminating point. By changing terminating edge we can't just switch the machines ON and OFF yet can likewise differ the force conveyed to them. So if the temperature is low the force conveyed to the fan will be cut down, additionally if the trademark force is low i.e. amid night the force conveyed to the light will be expanded.

D. GSM Modem

GSM (Global System for Mobile correspondences) is the innovation that supports the majority of the world's cell telephone systems [5]. GSM is an open, advanced cell innovation utilized for transmitting versatile voice and information administrations. GSM works in the 900MHz and 1.8GHz groups GSM bolsters information exchange paces of up to 9.6 kbps, permitting the transmission of essential information administrations, for example, SMS. The GSM standard is expected to address these issues. In the current work, SIM300 GSM module is utilized, it is indicated in fig.2. The SIM300 module is a Tri-band GSM/GPRS arrangement in a minimized module offering an industry-standard interface.

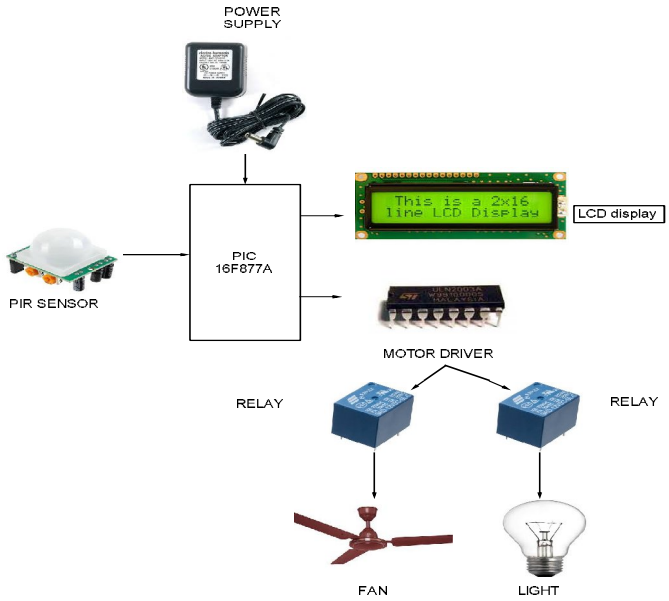
Fig. 3 GSM Modem

Highlights of GSM:

- Single supply voltage 3.2V to 4.5V.

- MT, MO, CB, content and PDU mode, SMS stockpiling: SIM card.
- SIM300 tri-band.
- Supported SIM Card: 1

This module is works on AT summon. AT charge is a truncation for Attention summon that is perceived by GSM Module. "AT summon set for GSM Mobile Equipment" portrays the Main AT charges to impart by means of a serial interface with the GSM subsystem of the phone. The GSM modem is interfaced to microcontroller through UART0 serial communication.



IV. CONCLUSION

At last aggregate force can be devoured by utilizing keen controlling framework. In the event that one unit of force is spared at purchaser level we can spare two units of force at force station. Hence the significance of force sparing and need of a keen framework increments. Such a brilliant force sparing framework is proposed in the paper that can spare power and expand solace level of the client with least use. We actualized the biometric entryway lock framework that builds the security level. The segments utilized as a part of the framework like microcontroller, sensors and remote handsets are promptly accessible and shabby. This framework can introduced in numerous applications, for example, automated watering system frameworks, mechanical robotization, security frameworks and so forth.

REFERENCES

[1] Yong Tae Park, PraneshSthapit and Jae-Young Pyun,"Smart Digital Door Lock for the Home Automation" TENCON 2009 978-1-4244- 4547-9/09/26.00 2009 IEEE.

[2] DhirenTejani, Ali Mohammed A. H. Al-Kuwari and VidyasagarPotdar "Energy Conservation in a Smart Home" 5th IEEE International Conference on Digital Ecosystems and Technologies (IEEE DEST 2011), 31 May -3 June 2011, Daejeon, Korea.

[3] KwangYeol Lee, Jae WeonChoi "Remote-Controlled Home Automation System via Bluetooth Home Network" 5th SICE Annual Conference in Fukui, August 4-6,2003 ,Fukui University, Japan.

[4] Khusvinder Gill, Shuang-Hua Yang, Fang Yao, and Xin Lu"A ZigBee-Based Home Automation System" IEEE Transactions on Consumer Electronics, Vol. 55, No. 2, MAY 2009.

[5] Raghu Ram.Gangi, SubhramanyaSarma.Gollapudi "Locker opening and closing system using RFID, finger Print, password and GSM" (IJETTCS 2013), Volume 2,Issue 2, March – April 2013.

[6] www.keil.com/dd/docs/datashts/philips/lpc2119_2129.pdf