

GSM Based Automatic Room Light Controller with Arduino

Prakash Patil¹, Kaustubh Kasote², Supriya Killedar³, Radhika Chougale⁴, Kshitija Padalkar⁵,
Rahul Pukale⁶

¹⁻⁴U.G Student, Electrical Engineering, Ashokrao Mane Group of Institutions, Vathar, Maharashtra, India

⁵Assistant professor, Electrical Engineering, Ashokrao Mane Group of Institutions, Vathar, Maharashtra, India

Abstract - The undertaking Automatic Room Controller with Bidirectional newcomer bit for recording points is a safe, good, ready way taken by electric current that takes over the work of controlling the room lights and fans as well as adding number of visitors in the room very accurately. When somebody moves in into the room then the bit for recording points is increased by one and based on the light in number of the room the light and supporter in the room will be got onto another line ON. When any one leaves the room then the bit for recording points is decremented by one. The light will be got onto another line OFF only when all the persons in the room go out. The total number of persons inside the room is also (did) put before the public on the LCD viewing. The microcontroller does the above regular work. It gets the signs from the sensors, and this sign put out is operated under the control of road-map of work which is stored in ROM. Microcontroller ATmega328 as in an unbroken stretch computer viewing output the IR sensor. When anything way through the IR sensor then the IR rays falling on the receivers are got in the way. This thing in the way is sensed by the microcontroller and counts the number of persons inside the room, according to the going in, coming in and going away from directions. Desconocido.

Key Words: Arduino, GSM, IR Sensor, LCD Display, LDR.

1. INTRODUCTION

The undertaking is designed for most good power for a given time business managers based on bit for recording points, light in number and temperature sensor.

The system also counts the number of persons going in, coming in and going away from the room and displays that news given on LCD viewing. Being dependent on persons place to come and go through as well as going out condition the room appliances will play their part. The last purpose of this system is to but for the power for a given time as well in connection with design automatic room light controller by turning off all the appliances when nobody is there in the home In this undertaking we are using Arduino UNO, LDR sensor, DHT-11 sensor, IR sensors, LCD display, (apparatus for) making air currents and light. There are 2 sensors, each kept at certain distance from the other. One of sensor is chiefly of a transmitter and a receiver, kept

exactly opposite to each other. The giving on part gives out modulated IR light which is received at the receiver end and got food to a microcontroller of Arduino UNO family. When a person moves in the room Arduino senses it (with the help of IR sensors) and increasing steps the count 8 and displays it on LCD. If LDR sensor is in dark condition then the lights of room gets ON. This system is owner of 2 groups of IR led and IR sensors to discover the persons going in, coming in and going away from the room. So if the person goes outside of the room then the light will get OFF. Similarly, when temperature 1 sensor 2 sensed the temperature 1 then the sign put out goes to the Arduino board and through Arduino board the supporter gets ON. If nobody is present in the room then it will sensed by Arduino and it will turn off the fans .This helps in amount made less mass of power for a given time .WE are using GSM so all the news given about person In the Room letting in through SMS .Further the undertaking can be gave greater value to by using timer order in the undertaking so that if the amount changing over does not take place for some reason as desired, then timer would complete the work after prefixed time.

2. LITERATURE SURVEY

In the past years, several well established institutions (libraries, polity centers, auditorium, etc.) wideness the globe have encountered various incidents related to traffic monitoring. It has been a necessity to monitor the visitors to siphon out the human traffic management task and tourist sprits estimate to maintain well-judged result for the organizational marketing and statistical research. This sooner indicates the patronage rate of goods and services by consumers. Therefore, we deem it toward to identify these problems encountered by our various organizations and find solutions to them by designing a digital bidirectional visitor counter (DBVC).The primary method for counting the visitors involves hiring human auditors to stand and manually count the number of visitors who enter or pass by a unrepeatable location. The human auditing using or the human-based data hodgepodge was unreliable and came at unconfined cost. For instance, in situations where a

large number of visitors inward and exiting buildings such as priming rooms, law courts, libraries, malls and sports venues, going for human auditors to manually count the number of visitors may result in inaccurate count collection. For this reason, many organizations have tried to find solutions to reduce the inaccurate traffic monitoring issues. It is our intention to diamond and construct this digital bidirectional visitor counter (DBVC) with maximum efficiency and make it very feasible for anyone who wants to diamond and construct prototype. Towers this spin will provide information to management on the volume and sprits of people in a building. Energy loss is occurred with a lighting system when the lighting system illuminates a light which is a zone which is not stuff used currently at that particular time or when it illuminates a light plane though sufficient lighting is misogynist to work. The most wontedly used lighting system is operated manually. In this method a user has to switch ON and OFF the required lights. Since the user can switch ON and OFF the lights as per their preferences there is an endangerment of keeping the lights in on state plane though it was not need during that time. This may occur considering of wildness of user and a large value of power is wasted.

3. SYSTEM ARCHITECTURE

General woodcut diagram of the proposed system as shown in Figure 1 below. The proposed idea is designed in embedded platform.

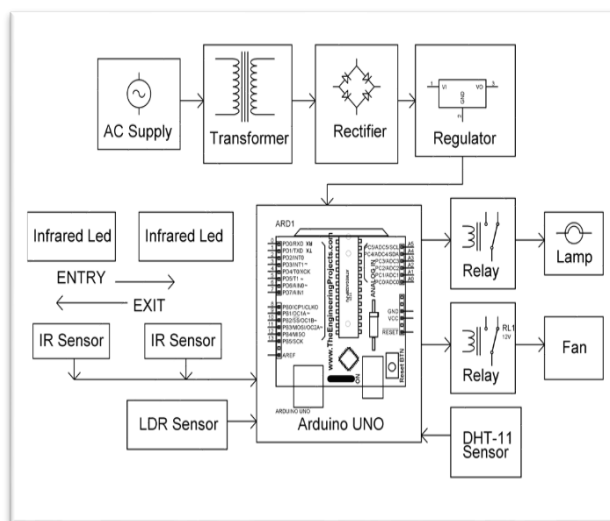


Fig -1: Block Diagram

A] ATmega328P

Arduinio board is programmed to tenancy loads in vibrations with the number of persons in the room. Arduino is an unloose source electronics model based on flexible, easy-to-use hardware and software. It is purpose for artists, designers, hobbyists, and anyone

interested in making interactive objects or environments. The Arduino UNO workbench is based on the ATmega328 microcontroller. It consists of 14 digital input or output pins, six terminology inputs a USB connections for programming the on- workbench microcontroller, a power jack, an ICSP header and a reset sawed-off it is operated with a 16MHz crystal oscillator. It contains everything needed to support the microcontroller. It is very user friendly; simply connect it to a computer with USB subscription to get started.



Fig -2: ATmega328p

The microcontroller on the workbench is programmed us-in Arduino programming language and Arduino development environment. The ATmega328/P provides the features: High Performance, Low Power Atmel- AVR 8-Bit Microcontroller Family, wide RISC Architecture, 32 x 8 General Purpose Working Registers, 32KBytes of In-System Self- Programmable Flash program memory, 1KBytes EEPROM, 2KBytes Internal SRAM, Programmable Serial USART, Programmable I/O Lines, Operating Voltage:1.8 - 5.5V, Speed Grade: 0 - 4MHz@1.8 - 5.5V, 0 - 10MHz@2.7 - 5.5.V, 0 - 20MHz @4.5 - 5.5V.

B] GSM Modem

A GSM modem is an is (became) expert with special knowledge sort of modem that says yes to a SIM card and operates via a listed as having made payment for to a things not fixed telephone operator, just like a things not fixed telephone, it can be a made with a written offering modem apparatus with one after another connection. Teachings AT orders used to control the modem.

AT is the short form Attention, and each need line starts with "AT" and for this reason modems are sometimes named AT has authority over. The GSM modem supports a group of GSM AT orders that cover to the point SMS has authority over The part of a greater unit is managed by a microcontroller and has a TTL one after another of time .The addition of high number of times every unit time connection that lets it to keep in touch (with) with the apparatus that uses the unit telephone (our

journeys round pick) as well in connection with get has authority over quality example AT has authority over, in the example of facts telephone connection . on one side from its own instrument for changing sound to electric, this part of a greater unit gets mixed together a come suddenly to light and a SRAM, A quart as well as connections needed for LCD viewing, sound, keyboard, And out-side SIM . The part of a greater unit is took in a process of parceling measuring just . 14 inches X 1. 14 inches X 0. 14 inches, for SMD with 64 pins placed sidwise, and getting to under the sides; it uses up 3,44 .5 V but, when un working, takes up only 1, Ma . The Gaussian least possible or recorded group, time of work keying (GMSK) is used for giving on the by numbers, electronic signs. In GMSK, a stage change represents the change from a by numbers, electronic or a 0,occurs over a stretch of time parts to the band is made lower, less .In GSMK,the stage change is not unchanging and it is put out on top- out .

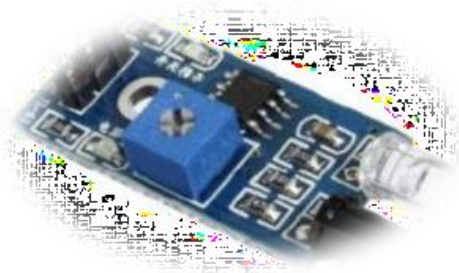


Fig -4: IR Sensor

D] LCD DISPLAY

LCD (Liquid clear glass put on view) netting is an electronic put on view part of a greater unit and discover a wide range of applications. A 16x2 LCD put on view is very basic part of a greater unit and is very commonly used in different apparatuses and journeys round. These parts of a greater unit are supported over seven parts and other more than one or 2 part LEDs. The reasons being: LCDs are money-related; easily able to be mapped; have no limiting condition of giving signs of special and even thing generally done characters (unlike in seven parts), ways of giving idea of movement from pictures and so on . A 16x2 fig 5. LCD viewing LCD means it can put on view 16 characters per line and there are 2 such lines. In this LCD each character is gave signs of in 5x7 bit of picture matrix. This LCD has 2 records, lists, namely, need and facts. The need list stores the need teachings given to the LCD. A need is a teaching given to LCD to do a selected before work like making ready it, clearing its netting, frame for events the marker light on computer viewer position, controlling viewing and so on . The facts range of voice stores the facts to be (did) put before the public on the LCD. The facts is the ascidia value of the character to be (did) put before the public on the LCD.

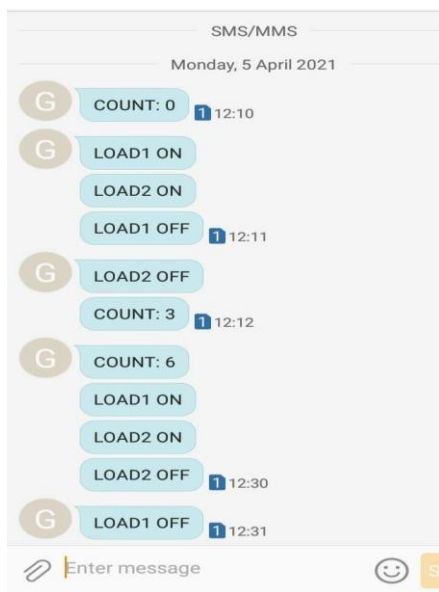


Fig -3: Output of GSM

C] IR SENSOR

IR sensor has transmitter and receiver. Here IR transmitter and IR receiver is made joined near the door. Whenever a person is sensed the receiver gets signal from transmitter and sends it to microcontroller. The features of Ir transmitter are lambda is 880nm, bit broken out material is Al, Ga, As, process of parceling sort: T 6 - 1 3 / 4 (5mm curved glass to change light diameter), matched photo sensor QSD123/QSD124.



Fig -5: LCD Display

E] LDR

A photo resistor or light dependent resistor is a part that is sensitive to light. When light falls upon it then the stopping effect changes. Values of the stopping effect of the LDR may change over many orders of size the value of the resistance falling as the level of light increases. It is not uncommon for the values of stopping effect of a LDR or photo resistor to be several me ohms in darkness and then to fall to a few hundred ohms in bright light. With such a wide different in some way in stopping effect, LDRs are simple, not hard to use and there are many LDR journeys round ready (to be used). The sensitivity of light dependent resistors or photo resistors also becomes different with the wavelength of the small event light. LDRs are made from semiconductor material to make able them to have their light sensitive properties. Many materials can be used, but one having general approval material for these photo resistors is cadmium, sulphide, Cds, F. Power Supply The main purpose, use of this solid mass is to make ready the needed amount of electric force to most important journeys round. +5v is given to 2 IR sensors, 2 Relays, LCD viewing and controller.



Fig -6: IR Sensor

3. FURTHER SCOPE

By using this way taken by electric current and right power supply we can join different amounts depending on applications such as supporters, tube lights, A / c, cooking place exhausters, heater and so on. By making an adjustment this way taken by electric current we can get done a work of opening and shutting the door.

4. CONCLUSIONS

This project succinct with the usage of the energy in this competitive world of electricity. It is well-organized unbearable to let someone know well-nigh the verism of the person entered and have taken the exit from the room. In any big hall if we want to Count Number of individuals it is very difficult as it results in

crowding and commotion to the whole class. This project turns out to be serving hand in such situation considering it gives the count on LCD display. Moreover it controls the lighting system automatically equal to how many persons are there in a room. Saves increasingly electric power than it seems and moreover collaborates the knowledge of electric and digital study. One can be knowledgeable well-nigh two variegated study at the same time with this project. It not only teaches us well-nigh the functioning of the spin but moreover teaches us how we can preserve electricity plane in the electricity based project.

ACKNOWLEDGEMENT

It is our utmost duty and desire to express wisecrack to the various torch bearers, who have rendered valuable guidance during the preparation of our project. First of all, we proffer our deepest gratitude to our revered Prof. R.S.Pukale for guiding us at every step in the project. He has most **sincerely** guided us **all over**; never living us unanswered for any of our doubts. It was his unvarying persuasion, encouragement, inspiration, and worldly-wise guidance that helped us in completing our project successfully.

REFERENCES

- [1] Prof.Dr.Subhash P. Rasal,"Implementation of Visiting Counter", International Journal of Emerging Trends in Electrical and Electronics (IJETEE - ISSN: 2320-9569) Vol. 7, Issue-2, Sep-2013.
- [2] Jussi Kuutti , Kim H. Blomqvist and Raimo E. Sepponen,"Evaluation of Visitor Counting Technologies and Their Energy Saving Potential through Demand-Controlled Ventilation", Energies 2014, 1685- 1705.
- [3] Himani Goyal,"Wireless Display using RF-Module", International Journal of Inventive Engineering and Sciences (IJIES) ISSN: 2319-9598, Vol.3, Issue-2, January 2015.
- [4] Goran H. Ismail, Bilal A. Mubdir, Asso R. Majeed, Asaad M. Jassim Al-Hindawi's, "Monitoring and Controlling Electric Power Stations Using GSM Network", Kurdistan Journal of Applied Research (KJAR) (Volume 4 - Issue 2 December 2019).