

Corona Prevention System for Work Place

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Abstract— The much recent global pandemic, COVID-19 has brought drastic changes to the livelihood of people from all avenues of life across the nation. As normalcy is being slowly restored, it is also essentially crucial that the health and wellness of members are ensured. As you know a new respiratory disease called COVID-19 is spreading across the world. In only a few months, the coronavirus pandemic has upended the daily lives of people around the world. With more than 30 million people filing for unemployment in the past six weeks. So now the most of people are started to come to office, school, college. As it is hard to sanitized every room by human being. So in order to over come this problem we come up with a idea which uses UV-C light .In this project we will design a system for workplace where in a UV-C light will be placed in the center of the room.A GSM Module will be connected to it so that the disinfection of the room can be performed by the professor , staff or clerk timings (preferably before office hours and after office hours so that human intervention will be avoided). There will be a timer which will be set for 30 seconds so that entire room is disinfected in that duration.(According to research UV-C disinfects a place within 20 seconds).

Keywords: 8051 microcontroller, Gsm module

I. INTRODUCTION

A Covid is a gathering of infections which targets affecting what's more, tainting the respiratory arrangement of people. This gathering of Covies incorporates SARS and the other ordinarily known cold and flu infections. However, the worldwide pandemic brought about by the notable COVID-19 has authored a name 2019-nCoV on January 2020 by the World Health Organization (WHO). It is relied upon to have its underlying foundations from the underlying cases that arose in Wuhan, capital of Hubei Province of China. Multiple attendants and clinical specialists of the PICC teamare drenched totally into the errand of dealing with the tainted patients and working nonstop to reestablish them to their ordinary ailments on a worldwide scale. In the United States, out of the initial 300 patients conceded to numerous emergency clinics across the city, it is noticed that 60.7% of them are men. 91.3% of them required ventilator backing to work with the breathing interaction.The test to the interaction

of viable identification and testing is that a sizeable extent of the populace stays asymptomatic to the contamination and doesn't show any apparent indications of getting the infection which makes the way toward following its underlying foundations a laborious process . However, regularity must be reestablished despite the fact that the COVID circumstance has left a few understudies, instructors, and working staff homebound. IoT (Internet of Things) considers the interconnectivity of numerous gadgets across a few locales to guarantee network. It can be adequately conveyed in the current COVID situation to handle the difficulties that happen in reestablishing regularity while guaranteeing that wellbeing and security are not bargained at any expense in associations and foundations . They develop and blast in the utilization of cell phones and savvy apparatuses in the wellbeing and government assistance area has cleared route for the information about every person to be surveyed and assessed on a mass scale. By the current COVID-19 situation, IoT offers various applications, for example, the keen ventilators and covers or the arrangements offered for the leeway of selfisolation at home while being checked by the clinical offices. A few current necessities like got information stockpiling frameworks, cloud and edge registering, canny information the executives, sensors for shrewd wellbeing gadgets [Which began as a nation level alarm in China with a few theories raised about its starting point has now showed into a worldwide pandemic with a large number of exploration completed to decide a fix .During the present days technology is all about the automation and wireless control of all the equipment used in industries, factories and households. Any equipment that can be controlled wirelessly is more easily maintained and it responds very fast comparing to the manual operation of the equipment. It increases safety as well as speed of operation in times of failure or damage. So here we present a design which uses wireless technology for switching of electrical appliances. This project uses the application of wireless communication i.e. GSM network for the wireless control of the electrical appliances. In this project the applications of GSM network for the design of a circuit to control the house hold appliances is shown, and also the design of the circuit and method to construct the system using GSM modem and 8051 microcontroller is explained. Various uses and limitations of the system are being briefed.

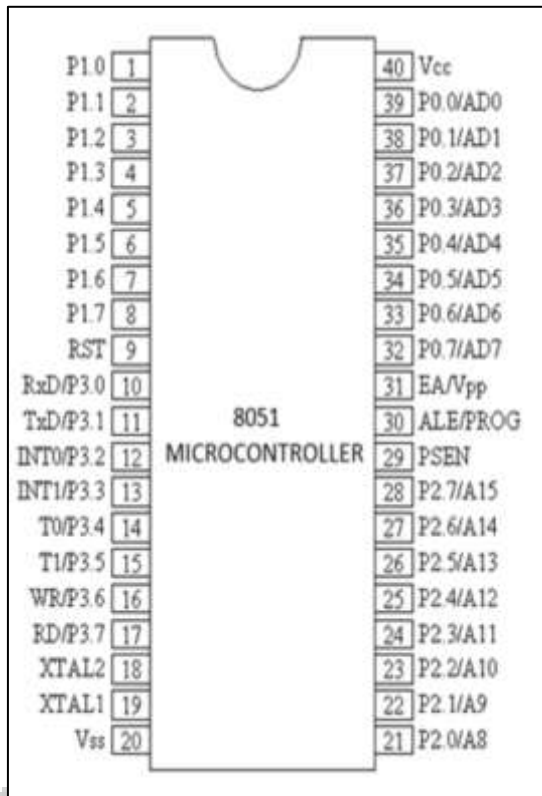


Fig. 2: 8051 Board

The 8051 structure consists of the following specific characteristics:

- 1) 116 bit PC & data pointer (DPTR)
- 2) 8nbit program status word (PSW)
- 3) 8 bit stack pointer (SP)
- 4) Internal ROM of 4kb
- 5) Internal RAM of 128 bytes
- 6) 4 register banks each containing of 8 registers
- 7) 80 bits of general purpose data memory
- 8) 30 I/O pins arranged as 4 8 bit ports (P0-P3)
- 9) Two 16 bit timer/counter (T0-T1)
- 10) Two external and three internal interrupt sources
Oscillator and clock circuits.

B. Power Supply

The whole system is based on solar energy and it is provided by solar panel. We also need a backup power supply for cloudy days. In our system we require +12Vdc, and +5 Vdc supply. Therefore, we are using 12VDC battery. 5 volts is required for microcontroller board and 12 Volts are required for motor driver and motors. 12V is supplied by DC battery but for constant 5V supply we are using 7805 voltage regulator.

C. GSM Module

GSM module SIM300 is being utilized in the undertaking here. It is very much like a cell with every one of the offices of sending and accepting a message, sending and getting calls. It has a correspondence that can be modified utilizing AT orders. The sign names forthe GSM modem correspondence port incorporate the accompanying; sound information and yield pins (for interfacing outside hands free sound gadgets), quiet control pin, streak programming signal pins, outer force pins, and collector and transmitter pins.

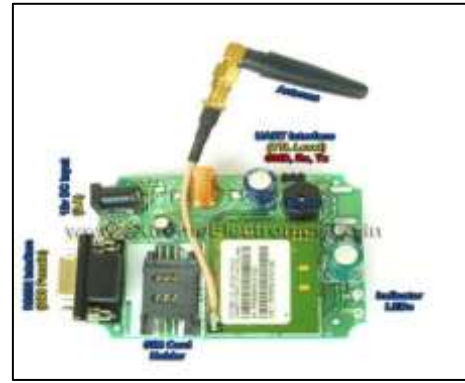


Fig. 3: Gsm Module

Here the RX and TX pins are utilized for the sequential correspondence with the microcontroller. There are different AT orders to check the sign strength and association and SIM status and so on Here the Hyper Terminal is utilized to at first interface with the 8computer to check the module. It additionally has a recieving wire to get the GSM signal from the client's telephone. The fundamental AT orders are stacked into the program of microcontroller for it to interface with the GSM module. The figure given underneath shows a GSM module.

D. UV-C Light

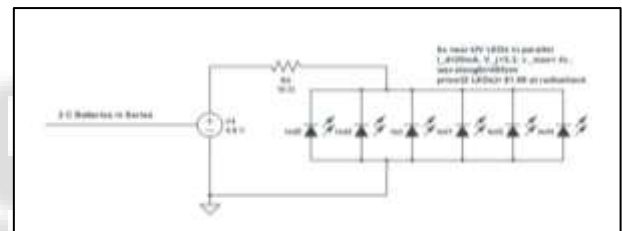


Fig. 4: UVC

UVC radiation is effective at inactivating a particular virus, there are also limitations to how effective UVC radiation can be at inactivating viruses, generally. UVC radiation can only inactivate a virus if the virus is directly exposed to the radiation. Therefore, the inactivation of viruses on surfaces may not be effective due to blocking of the UV radiation by soil, such as dust, or other contaminants such as bodily fluids. Many of the UVC lamps sold for home use are of low dose, so it may take longer exposure to a given surface area to potentially provide effective inactivation of a bacteria or virus.

IV. SYSTEM DESIGN

The system is an integration of multiple health verification and attendance management procedures. It performs processing on all the input data that has been obtained and generates out the desired response in the form of blinking of LED lights. The simulation circuit is construct with the end goal that, the 8051 microcontroller gets the sign from the keypad through port P1 and it deciphers the sign and afterward according to the verified code, it conveys the message to the transfer associated with the pins P3.4, P3.5, and simultaneously, the LCD show is being utilized for the showcase of the code given by the client, and it is associated with the microcontroller through the port P2. The verified code given in this undertaking is 78 and after that to choose

which gadget to be turned on, client select 1 or 2 and 0, 1 are squeezed for on and off of the gadgets exclusively. fig.5.1.2 and the program code for the microcontroller is given below

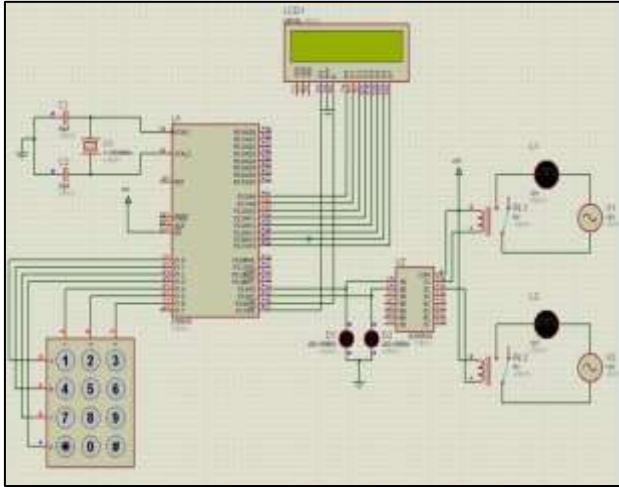


Fig. 5: Simulation circuit

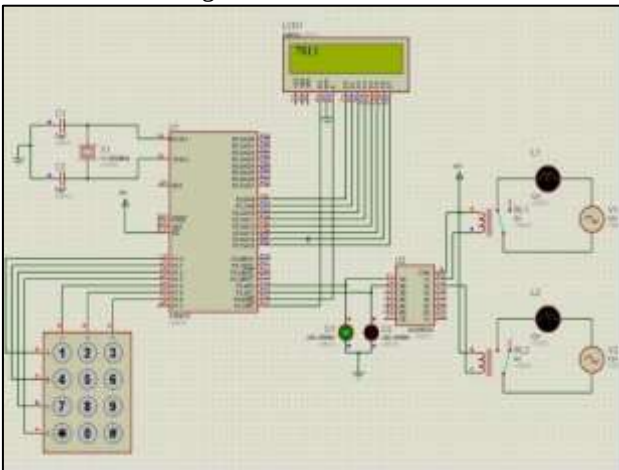


Fig. 6: Simulation Result

V. CONCLUSION

The project is aimed to design system for workplace where in a UV-C light will be placed in the center of the room. A GSM Module will be connected to it so that the disinfection of the room and implement a GSM based wireless control of house hold electrical appliances.. After doing different tests and programming different codes, eventually the obliged outcome is put forward. It is a fast and efficient approach of devices to use them for various health related applications. This equipment works anywhere with a great gathering od sign.

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