



iJRASET

International Journal For Research in
Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 Issue: VI Month of publication: June 2021

DOI: <https://doi.org/10.22214/ijraset.2021.35657>

www.ijraset.com

Call:  08813907089

E-mail ID: ijraset@gmail.com

Programming Language based Doctor Less Corona Patient Treatment as well as Monitoring

Anshuman Singh¹, Kriti Singh², Sumit Bajpai³, Rajan Kushwaha⁴, Kanika Lamba⁵

^{1, 2, 3, 4, 5}Dr. A.P.J. Abdul Kalam Technical University, Lucknow, Uttar Pradesh

Abstract: *Coronavirus (COVID-19) is an infectious disease which split human to human caused by a newly acquired coronavirus. Mostly people infected with COVID-19 will experience moderate respiratory illness and recover without the need for special treatment. Older people, as well as those with less medical problems such as disease, diabetes, chronic respiratory diseases, and cancer are more likely to be seriously ill. The best way to prevent and reduce transmission of COVID-19 is to protect yourself and others from infection by washing your hands or using alcohol-based medicine often and without touching your face. The COVID-19 virus is spread mainly through saliva droplets or runny nose when an infected person coughs or sneezes, so it is important that you re-practice the practice of breathing (for example, by coughing on a flexible elbow). At this time, there are no specific drugs or specifications for COVID-19. However, there are many ongoing clinical trials examining possible treatments. We can only protect ourselves from this problem because we currently do not have a cure so in this proposed program we will provide a setup that will enable automatic protection through the installation of equipment and set up electrical equipment. In India, about 200 percent of people lose their lives as a result of disrupted health care systems which means that in many hospitals, the doctor visits patients with a morning shift or in the afternoon shift or on individual shifts. What happens if a patient's health becomes important during this time or when the doctor is not in the market with the patient. The solution is; the patient may lose his or her life. thus avoiding this important situation; we tend to suggest a device that raises the device of an intelligent embedded system that monitors the health of patients indefinitely. This system monitors patients' heart rate, vital signs, and salt water (if any). If any of the above parameters are on the far side of the periphery, this sensible device informs physicians or caregivers and suggests ways to improve the patient's overall health savings. Objects (IoT) sees the way forward to something in any place by anyone at any time. information and communication technology helps to transform digital technologies. The IoT location unit is designed to connect multiple mobile devices to networks. reveals the structural design of an intelligent health care system using the Wireless Sensor Network. Monitoring a patient's health is a common function in health care facilities from home to hospital. In the proposed system, patients carry a set of nerve endings to collect their physical limits. Arduino is attached to the patient's body, assists the deaf and sends sensory information to the server via WiFi. WiFi, which is used in most hospital systems, provides very little interference with the operation of some devices. The server detects unusual cases of patients using the limit value and sends an SMS and email to the doctor with a video-feed. The system allows for the movement of a patient wearing a nerve and the video feed enhances physician communication. Through this program we can improve the quality of treatment for patients who may need ongoing long-term health monitoring.*

I. INTRODUCTION

The World Health Organization (WHO) was declaring the coronavirus 2019 is a pandemic. A concerted effort was needed to curb the spreading of the virus. Epidemic has been described as “a broader and more widespread phenomenon.” The last report of global outbreak is H1N1 flu in 2009.

On December 31, 2019, a series of large number of cases of unknown pneumonia were reported in Wuhan city, Hubei province in China. In January 2020, a previously unknown virus was discovered, later named the 2019 novel coronavirus, with samples found in cases and analysis of the virus genetics indicated that this was the cause of the outbreak. This coronavirus called Coronavirus (COVID-19) by WHO in February

2020. The virus called SARS-CoV-2 and associated disease is COVID-19. As of 31 Jun. 2021, more than 31,444,670 cases have been found worldwide in 188 countries with more than 402,493 deaths.

Coronaviruses are family of viruses that cause illnesses of respiratory infections or intestinal infections. Respiratory infections can range from the common cold to more serious illnesses eg .

- 1) MERS-CoV
- 2) SARS-CoV

The novel coronavirus (nCoV) is a new species is never been identify in humans before. Once scientists correctly identified the coronavirus, they named it (as in the case of COVID-19, the virus causes SARS-CoV-2).

Coronaviruses got their name as it look under a microscope. The virus has a genetic component surrounded by envelopes containing anti-protein proteins. It is look like a crown. The word Corona means "crown" in Latin word.

Coronavirus is zoonotic , meaning that viruses are transmitted between animals and humans. It was determined that MERS-CoV was transmitted from camel camels to humans . The source of SARS-CoV-2 (COVID-19) is not yet clear, but investigation continue to identify the source of the zoonotic eruption .

II. CLINICAL PRESENTATION

1) Coronaviru usually couosed respiratory problems. Among those who will be infected, some of them will not show any symptoms. Those who developed symptoms may develop a mild to moderate illness, but a mild one with symptoms such as seasonal flu. Symptoms are :

- a) Respiratory symptoms
- b) Fever
- c) Cough
- d) Low oxygen level
- e) Fatigue
- f) Sore throat

2) A small group of people show more severe symptoms and they will need to be hospitalized, often with pneumonia, and in some cases, the illness may include ARDS, sepsis and panic attack. Signs of emergency warning where medical care is currently required include:

- a) Difficulty in breathing
- b) Persistent pain/Pressure in the chest
- c) New confusion or inability to wake up

3) The virus it causes COVID-19 infects people of all ages. However, evidence so far suggest that two groups of people are at high risk of contracting the severe COVID-19 disease:

- a) Older people (people cross 70 years of age)
- b) People with serious illnesses like :
 - c) Cancer
 - d) Heart disease
 - e) Diabetes
 - f) Blood pressure
 - g) Chronic liver disease

WHO has published the advice of these high-risk groups and the public support. This is done to ensure that these high-risk individuals are protected from COVID-19 without discrimination, stigma, high-risk leave or access to basic care and social care.

4) WHO recommendation for high-risk people [16]:

- a) If you have guests in your home, extend a "1 meter greeting", such as a wave, a handshake or a bow.
- b) Ask guests and your roommates to wash their hands.
- c) Clean and disinfect your area (especially those that people are most affected by) regularly.
- d) Decrease shared space if your roommate is unwell (especially with COVID-19 symptoms).
- e) If you show signs of COVID-19 illness, contact your healthcare provider by telephone, before visiting your health facility.
- f) Have an app that to be prepare for the COVID-19 outbreak in your community.
- g) If you are in public, follow the same prevention guidelines as you would at home.
- h) Keep update informations on COVID-19 by getting information from reliable sources.

5) Transmission of COVID-19:

Evidence is still available, but current information suggests that one-to-one transfers are possible. The fundamental of transmissions of COVID-19 remain unclear at present, but evidence from other coronaviruses and respiratory diseases suggests that the disease transmitted by large respiratory droplets and direct or indirect contact with infected person.

The incubation period of COVID-19 is currently understood to be between two and 21 days. This means that if a person is healthy within 14 days after contact with a person with COVID-19 certified, he or she is not infected.

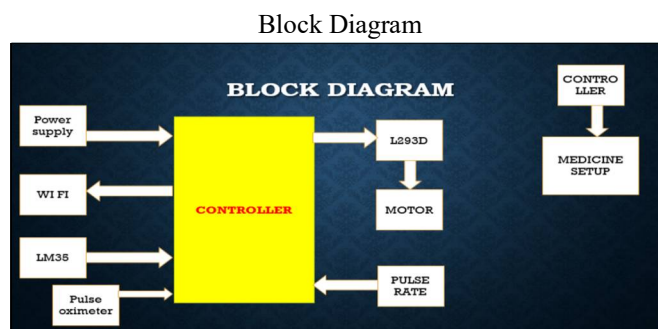
6) Preventing Transmission

The WHO proposes these basic precautionary measures to protect the new coronavirus

- a) Keep update with information on the COVID-19 outbreak through updates from WHO or local and national health authorities.
- b) Clean hand hygiene regularly by rubbing your hands with alcohol if your hands do not look dirty or with soap and water if your hands are dirty.
- c) To avoid touching your eyes, nose, and mouth.
- d) Practice cleansing by coughing or sneezing on the elbow or curved skin and discarding tissues immediately.
- e) Wear a medical mask you have and do hand hygiene after removing the mask.
- f) Keep a public distance (about 2 meters) for people with respiratory symptoms.
- g) If you have a fever, cough and shortness of breath seek medical help.

Automation is an important concept in IoT more like Cloud computing, because it performs a number of functions such as storage without high-level control. Three main services in cloud space infrastructure as a service, platform as a service and packages as a service. Many services have provided Amazon location service Internet service by Amazon, Google App Engine with Google, Cloud Request Delivery by HP. and Windows Azure by Microsoft. if I have ever analyzed the use of IoT, I have actually used a lot of sensors to scan the patient's health information and store it in a cloud set up to date. With this paper, the program is designed to look at the state of health of a person with low energy. a blink device for a heartbeat and a heating device, a local Vibration unit used to monitor a patient's health status. Whenever any parameter becomes abnormal then the controller sends information about the IoT module. RFID inputs are given access to the patient's department. Transfer information is stored within a cloud server that can be accessed from anywhere. the details are checked by a doctor (caregiver). largely based on the amount of nerve implants the doctor will analyze the patient's posture. The computer hardware used to make this technology is the Arduino Uno, heart rate device, natural reflex device, heating device, buzzer and vibration device. Device nodes have been routed to multiple wireless device networks that hear the data and transmit it to the channel below. Mesh technology has been used to create WSN with multiple nodes, Arduino board malfunctioning, heating device and Xbee module. Xbee hears the details and sends them to the Arduino board abuse center. A Patient Care Plan can be a way for a doctor to always direct one person, in a way that is more than one parameter at a time in a very remote area. The heartbeat reflects the stability of the human heart. It helps to assess the condition of the patient's circulatory system. The human heart supplies oxygen-rich blood to the muscles. It transmits tissue contamination without tissue. The pulse rate varies according to the muscle's need to digest carbonic acid gas and absorb the nutrient and change that problem to occur throughout stress or sleep. Typically, the average intestine calculated by older men for traditional rest is close to seventy M.M. and for seventy-five adult women M.M. .. This heart rate program helps the United States of America to detect liver flashes per minute and compare them to normal heartbeats; information will only track this heart disease. Hot body temperature is also a common indicator of body condition. the traditional temperature of the natural structure is $(98.6^{\circ} \text{F} \pm 0.7^{\circ} \text{F})$ and differs from human activity in addition to maturity. when a person is overheated the blood vessels in a person's skin tend to transfer the remaining heat to the person's skin. and for this reason, the person begins to sweat. Then the sweat evaporates and this process supports cooling of organic matter. as long as a person is very cold, a person's blood vessels are narrowed so the blood flow to a person's skin is reduced to maintain body temperature. As a result, you begin to tremble in relation to a degree that is a natural, rapid muscle contraction. The process of applying an injury-seeking strategy and a strategy to define engineering structures is called Structural Health Observation (SHM). Injuries are defined as changes in the fabric and / or geometric structures of a structural system, as well as changes in the parameters and properties of the system, which adversely affect the functioning of the system.

The SHM approach involves systemic perception by periodically abusing strong responses from the corresponding species lists, issuing harm-sensitive options on these scales, and statistical analysis used for those options to make the system life a reality. In future SHM, the release of this method contains periodically updated details regarding the flexibility of the structure to make its operation easier for the inevitable aging and damage resulting from operation. The amount of traditional Saline intake taken by a patient depends entirely on the patient's physical condition but sometimes.



III. HARDWARE REQUIREMENT

- A. Controller
- B. WI FI module
- C. L293d
- D. Motor
- E. Pulse rate sensor
- F. Lm35Conveyor motor
- G. Power cable
- H. Robot chasis
- I. Conveyor motor

IV. PERFORMANCE

- A. In this case our controller will play a very important role or we can say it is the brain of our project.
- B. Everything looks at the controller according to the instructions for each item, and the controller will be organized by the user.
- C. In the event that abnormalities occur in the area of temperature and humidity with WIFI data, send a cell phone to your doctor.
- D. And this time our robot will provide medication and monitor health from time to time.

Develop an offshore health monitoring program. In these sensors detect medical parameters such as pressure, pulse and Temperature unit designed and connected to the ATmega16 micro-controller. This built-in ADC microcontroller that converts sensors incorporates analog signals into digital signals. Nowadays, wearable sensors such as pulse monitors and unit area pedometers are commonly used. Many local retail units are already on the market, such as the Life shirt, made of Vivo metrics, a bodybuilding program developed by Body Media and therefore a Nike-Apple iPod sports tool that manages personal response to performance during exercise. The Beat detector provides direct appreciation for studying cardiovascular function. This detector monitors blood flow through Finger. because the heart forces blood through the arteries inside, the amount of blood inside the Finger changes over time. The heart rate monitor is designed to deliver digital output to the heart when the finger is placed on it. Contains a bright red crystal trimmer and a light weight detector. The crystal trimmer should be very prominent because the smallest weight should pass through the finger and be detected by the detector. When the center of the pump pumps blood to the arteries, the finger becomes a little more opaque so a small amount of weight reaches the detector. With every heart beating the detector signal is different. This variation is converted into electric shock.

This digital output will be connected to a small controller to live each Beats Minute (BPM) rate. This signal is amplified and compressed by an electronic device that emits + a 5V logic standard signal. The output is further indicated by a light emitting diode that blinks at every heartbeat. Organized style contains an important advantage: introducing natural sensors that collect contextual data can aid in the analysis of medical information. When, e.g., a patient performs sports, medical restrictions such as dosage or O₂ supplementation should be forced to be taken differently compared to the same person lying in bed. it is calculated that the seventy square measure of all diseases can be protected, and with proper testing.

V. DESCRIPTION OF THE ITEM


A. Arduino

Arduino was designed by the uses of various microprocessor and controler. Boards equipped with sets of digital anchors and analog input / output (I / O) that can be interrupted on various expansion board ('shields') or loading boards (for prototyping) and other circuits. Boards that include a series of connectors, including Universal Serial Bus (USB) in some models, are used to load programs from your computers. The Microcontrollers can be configured by using the programming languages C and C++, using a standard API also known as "Arduinoject" provides an integrated development environment (IDE) and command line tool (arduino-eh1) developed in Go.

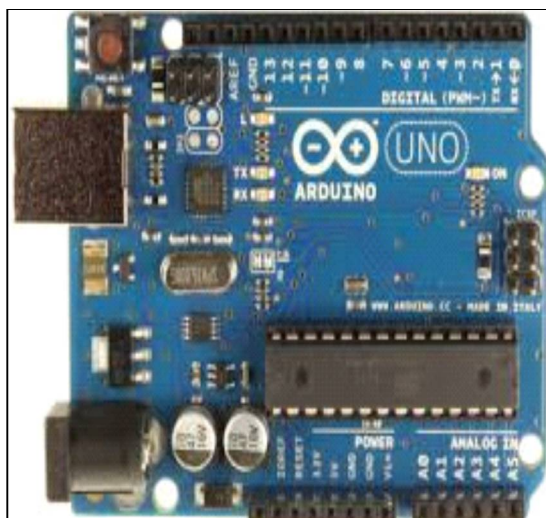
Arduino project was launched in 2005 as a student tool at the Interaction Design Institute Ivrea in Ivrea, Italy, [2] which aims to provides a cheap and easy way for novice and technicians support to build devices that work with their environment using sensors and operators. Typical examples of such devices for beginners include recreational robots, thermostats and motion sensors.

The name Arduino comes from a bar in Ivrea, Italy, where some of the founders of the project were meeting. The bar was named after Arduino of Ivrea, who won the Ivorian March and King of Italy from 1002 to 1014. Integrated Development Environment (IDE) is a cross-platform application (Windows, MacOS, Linux) written with functions from C and C++. [2] It is used for writing and uploading programs on Arduino compatible boards, but also, with the help of third-party cores, other vendor development boards. [3]

IDE source code is issued under the GNU General Public License, version 2. [4] Arduino IDE supports languages C and C++ using special code editing rules. [5] IDE of Arduino provides a software library from the Wiring project, which provides code requires only two basic functions, starting with the drawing and the main loop system, integrated and linked to the main stub () program in the active cyclic executive and GNU toolchain, integrated with IDE distribution. [6] Arduino IDE uses avdude program to convert portable code into text file by inserting hexadecimal code uploaded to the Arduino board via the download program to the board firmware. [7] By default, avrdude is used as a loading tool to light up user code on official Arduino boards [8].

Arduino Pro IDE	
Developer(s)	Arduino Software
Preview release	v0.0.2 / 28 October 2019; 10 months ago ^[9]
Repository	github.com/arduino/Arduino 
Written in	C, C++
Operating system	Windows, macOS, Linux
Platform	IA-32, x86-64, ARM
Type	Integrated development environment
License	LGPL or GPL license
Website	blog.arduino.cc/2019/10/18/arduino-pro-ide-alpha-preview-with-advanced-features/

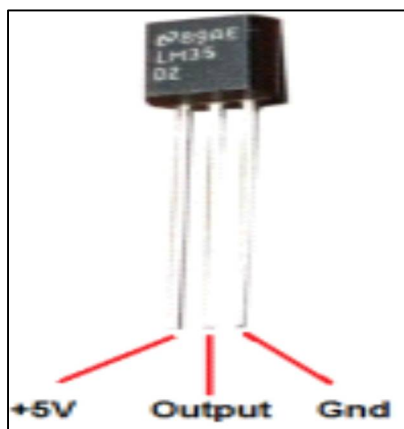
With the rising popularity of Arduino as a software platform, some vendors have begun using custom open source computers and tools (cores) that can create and upload drawings to other microcontrollers that are not supported by the official line of Arduino microcontrollers.



B. LM 35

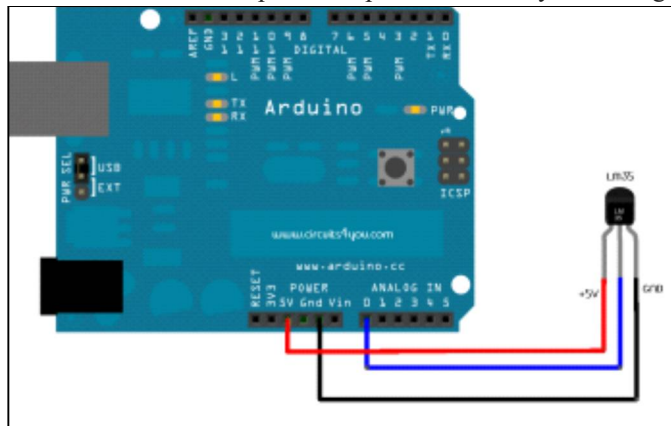
- 1) *Introduction:* LM35 is Generally, a temperature sensor device specifically designed to measure the temperature . The LM35 is an accurate IC temperature sensor for its output in sensing the temperature (in ° C). With the LM35, the temperature measured more accurately than the thermistor. It also has low temperatures and does not cause temperatures above 0.1 ° C in dry air. The operating temperature range from 55 ° C to 150 ° C. The low output impedance of LM35, precise output, and accurate measurement make integration easy to read or control the regions much easier.It perform work by using of power supply, management battery, utilities, etc.

The temperature sensor:



- 2) *LM35 Temperature sensor Pinout:* The LM35 is an integrated circuit sensor that is used to measure temperature by delivering electricity equal to the temperature (in ° C). It measure the temperature more accurately than using a thermistor. Sensor circuit is closed and not subject to oxidation. The LM35 produces higher discharge power than thermocouples and may not require the output power to be increased. The LM35 has an output power equal to the temperature of Celsius. Feature rating. 01V / ° C. It does not require any external measuremens like cutting, maintains an accuracy of +/- 0.4 ° C at room temperature and +/- 0.8 ° C above of range of 0 ° C to + 100 ° C. Another important feature of LM35 is that it absorbs Only 60 small amplifiers in its supply and has low heating capacity. The LM35 comes with many different packages such as TO-92 transistor-like package, T0-46 pack can include packet similar to transistor, 8- lead surface mounting SO-8 frame small package.

- 3) *How to connect Temperature Sensor to Arduino Uno?:* The LM35 IC has 3-2 power supply pins and one analog output. A low voltage IC is uses approximately + 5VDC power. Pin 2 provides output per 1 millivolt at 0 ° C (10mV per degree) So to get the degree value in Celsius, all you have to do is take the power output and divide by 10 - this gives the degree is in Celsius.

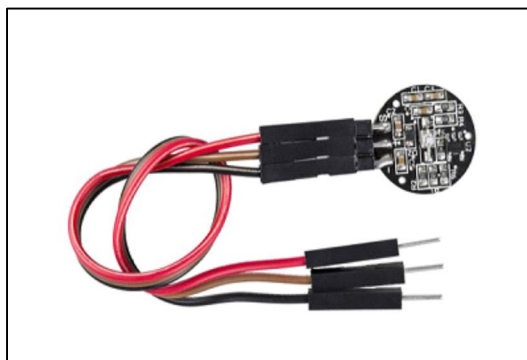


The circuit connections are made as follows:

- Pin 1 of the LM35 goes into +5V of the Arduino.
- Pin 2 of the LM35 goes into analog pin A0 of the Arduino.
- Pin 3 of the LM35 goes into ground (GND) of the Arduino.

C. Pulse Sensor

1) Introduction



PulseSensor is a type of photoelectric analog sensor used to measure heart rate and heart rate. Worn on the finger or ear, the sensor can transmit collected analog signal to the MCU, and then analog signal will be converted into a digital signal and when a calculation is completed, the MCU finds the heartbeat values and uploads the data to a computer by drawing a wave form. It is an open source hardware, should be suitable for scientific research and educational presentation on the topic of heartbeat and secondary development.

2) Main Features

- Supply Voltage: 3.30V or 5.00V;
- Output Signal Type: Analog Signal;
- PCB Diameter: 16.00mm;
- Amplification: 330;
- LED Wavelength: 609.00nm;
- Output Signal Range: 0~3.3V or 0~5V ;
- Current Range: < 4mA.

3) Introduction of Pins

- a) S: Signal Output Wires
- b) +: 3.3V-5V Applied Voltage
- c) -: GND

VI. ADVANTAGE

- A. Contact less treatment
- B. Protect virus spreading among doctors
- C. Proper health monitoring
- D. Time to time health update to doctor
- E. Fully automated
- F. Zero involvement inside the patient ward

VII. CONCLUSION

The Internet of Things is now considered one of the most accessible solutions to any remote value tracking, especially in the field of health monitoring. Helping to ensure that individual data for prosperity is secured within the cloud, hospital stay is reduced to routine and most important tests for health care and the diagnosis by any doctor at any stage. In this paper, an IoT-based health monitoring system was developed. The system monitors body temperature, heart rate and room temperature as well as temperature sensors, which are also displayed on the LCD. These sensory numbers are sent to the medical server using a wireless connection. This data is then downloaded from an authorized human phone on the IoT platform. With the figures obtained by the doctor and diagnose the disease and the state of health of the patient.

REFERENCES

- [1] S.H. Almotiri, M. A. Khan, and M. A. Alghamdi. Mobile health (m- health) system in the context of iot. In 2016 IEEE 4th International Conference on Future Internet of Things and Cloud Workshops (FiCloudW), pages 39–42, Aug 2016.
- [2] Gulraiz J. Joyia, Rao M. Liaqat, Aftab Farooq, and Saad Rehman, Internet of Medical Things (IOMT): Applications, Benefits and Future Challenges in Healthcare Domain, Journal of Communications Vol. 12, No. 4, April 2017.
- [3] Shubham Banka, Isha Madan and S.S. Saranya, Smart Healthcare Monitoring using IoT. International Journal of Applied Engineering Research ISSN 0973-4562 Volume 13, Number 15, pp. 11984-11989, 2018.
- [4] K. Perumal, M. Manohar, A Survey on Internet of Things: Case Studies, Applications, and Future Directions, In Internet of Things: Novel Advances and Envisioned Applications, Springer International Publishing, (2017) 281-297.
- [5] S.M. Riazulislam, Daehankwak, M.H.K.M.H., Kwak, K.S.: The Internet of Things for Health Care: A Comprehensive Survey. In: IEEE Access (2015).
- [6] P. Rizwan, K. Suresh. Design and development of low investment smart hospital using Internet of things through innovative approaches, Biomedical Research. 28(11) (2017).
- [7] K.R. Darshan and K.R. Anandakumar, "A comprehensive review on usage of internet of things (IoT) in healthcare system," in Proc. International Conference on Emerging Research in Electronics, Computer Science and Technology, 2015.
- [8] Internet of Things (IoT): Number of Connected Devices Worldwide From 2012 to 2020 (in billions). [Online]. Available: <https://www.statista.com/statistics/471264/iotnumberof-connected-devices-worldwide/>



Name:- Anshuman Singh

Branch: Electrical Engineering

Email Id : -aanshuman121@gmail.com

Contact Number : -880829888



Name:- Kriti Singh

Branch : - Electrical Engineering

Email Id : kritishwetasingh06@gmail.com

Contact Number : -8707439268



Name- Sumit Bajpai

Branch : - Electrical Engineering

Email Id: -sumitbajpai421@gmail.com

Contact Number : -72752 93592



Name : -Rajan Khuswaha

Branch : - Electrical Engineering

Email Id : - Kushwaharajan3668@gmail.com

Contact Number : - 6392 263 668



This project was under the guidance of

Proff. Kanika Lamba.

Facility of Electrical department in BBDITM.

Email id:- kanikalamba2@bbdnitm.ac.in



10.22214/IJRASET



45.98



IMPACT FACTOR:
7.129



IMPACT FACTOR:
7.429



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089  (24*7 Support on Whatsapp)