

# **THE “NOVEL APPROACH TO DETECT CONTACTED PEOPLE WITH COVID+ve PERSON USING IOT.”**

Submitted in the partial fulfillment of term work of 8<sup>th</sup> semester

## **BACHELOR OF ELECTRONICS ENGINEERING**

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**DEPARTMENT OF ELECTRONICS ENGINEERING  
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**2020-2021**

# CERTIFICATE

This is to certified that the project synopsis report entitled

**“NOVEL APPROACH TO DETECT  
CONTACTED PEOPLE WITH COVID+VE  
PERSON USING IOT”**

has been submitted by

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B.E Final Year (8<sup>th</sup> Sem ETRX)

In partial fulfillment of the award of degree of Bachelor of Engineering in Electronics Engineering, **Datta Meghe Institute of Engineering, Technology & Research** (*An Institution Affiliated to Rashtrasant Tukdoji Maharaj Nagpur University*) during academic session (2020-2021). This is the record of their work under my guidance and to my immense satisfaction.



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**DEPARTMENT OF ELECTRONICS ENGINEERING**  
**DATTA MEGHE INSTITUTE OF ENGINEERING, TECHNOLOGY & RESEARCH,**  
**Sawangi (Meghe), Wardha, 2020-2021**

**DECLARATION**

We hereby declare that seminar report on the project entitled “Novel approach to detect contacted people with Covid+ve person using IOT” was carried out and written by us under the guidance of **Prof. -Dr.Rajendra Rewatkar**, Datta Meghe Institute of Engineering, Technology and Research, Wardha. This work has not been previously formed the basis for the award of any degree or diploma or certificate nor has been submitted elsewhere for the award of any degree or diploma.

Place: Wardha  
Date: 01/06/2021

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## **Abstract**

Detecting COVID-19 early may help in devising an appropriate treatment plan and disease containment decisions. The current COVID-19 pandemic has impacted the world with over 18.35 million infections and over 6,96,147 deaths so far (as of 5th August 2020) [1]. Early identifying, isolation and care for patients is a key strategy for a better management of this pandemic. This Feature Topic (FT) aims to encourage researchers and practitioners from both industry and academia, active in the Internet of Things (IoT) domain, to explore the state-of-the-art and out-of-the-box IoT solutions to combat the COVID-19 pandemic by incorporating IoT-based smart solutions. For those essential workers who aren't able to stay home, Wireless sensor monitoring and insights can help reduce worker's risk. For example, rather than waiting until individuals test positive, software can be used to help identify when area infection rates climb and redistribute workers to avoid infection in the first place.

Index Terms—COVID-19, Wireless Sensors, Corona Virus Detection

## **Project philosophy**

COVID-19 is a global disaster affecting economies throughout the globe. Many industries see massive monetary losses, and businesses are going bankrupt. Although, unlock process is started still many industries facing problem due to increasing rate of Covid+ve patients, it is not possible to close working after detection of individual positive employee. Also it is difficult to find contacted employees with Covid+ve employee.

It is a constructive approach towards avoiding shutdown of industries/factories/colleges. It will help people to avoid contact with Covid+ve person and also from those which came in contact with the same Covid+ve person.

With the help of IoT, Digital smart-Id cards will be created which contains the detailed information of an employee. The card will active when the person enters the campus and remains active until he/she leaves the campus. Users Data can be collected in software, also contacted person log is also get recorded. These all devices are connected to each other and can save 2000 device data. It detects the information of a card holder that where and whom he/she

meets or come in contact. To implement software who controls distance of a hardware device to detect persons. QR code generation for person identification.

To control all this Superadmin can handle the permission to access device in many companies. Superadmin can control device access to company as well as user too. The device can be issue by user if he is new to the organisation. If person left the organisation, have to return device. Superadmin can control device issue, return activities.

Implementing the idea will make the industries run without any shutdowns. It will not also affect the economy, people will not lose their jobs. Those who are working on daily wages will not suffer financial crises. There will be decrement in numbers of getting affected by this pandemic.

This paper presents a wearable RF device in the form factor of a Pendant, suitable for powering smart RF device. The design includes a round dipole antenna, matching network, RF-DC converter, and DC-DC converter. The system converts a 915 MHz RF signal into a constant 3.6 V DC output with an output power up to 106.5  $\mu$ W at -1 dBm input power, sufficient to data transmit and received pendant in stand-by mode. An experimental comparison between multistage Cockcroft-Walton and Dickson RF-DC converters shows that the Dickson topology offers higher efficiency at high input power, whereas the Cockcroft-Walton converter performs better for low input power. The pendant can produce up to 23.2  $\mu$ W at 10.4 m from a commercial isotropic 3 W RF power transmitter.

**Index Terms— RF Device, Wearable Pendant, WSN.**

# Chapter 1

## Introduction:

### 1.1 Overview

Corona viruses are a famous family of viruses that cause illness in both humans and animals. The new type of corona virus COVID-19 was firstly discovered in Wuhan, China. However, recently, the virus has widely spread in most of the world and causing a pandemic according to the World Health Organization (WHO). Further, nowadays, all the world countries are striving to control the COVID-19. There are many mechanisms to detect corona virus including clinical analysis of chest CT scan images and blood test results. The confirmed COVID-19 patient manifests as fever, tiredness, and dry cough. Particularly, several techniques can be used to detect the initial results of the virus such as medical detection Kits.

Throughout history, pandemics have been a constant shadow, attached to the tale of human life. In most cases, pandemics follow a similar pattern. A cluster of infections is discovered. As more people get infected, healthcare professionals start working around the clock. Some attempt to contain the pandemic, while others care for the sick. And a global disruption of life spirals out of control. The recent surge of COVID-19 pandemic has affected all spheres of our daily life.

This Feature Topic (FT) aims to encourage researchers and practitioners from both industry and academia, active in the Internet of Things (IoT) domain, to explore the state-of-the-art and out-of-the-box IoT solutions to combat the COVID-19 pandemic by incorporating IoT-based smart solutions. Such solutions can range from IoT-based industrial production of ventilation units, masks and other medical equipment to monitoring patient conditions at hospitals or self-isolation at home in a secure manner, developing new techniques for passive, privacy-preserving contact-tracing techniques, and diagnosing the COVID-19 conditions based on IoT and mobile phone data collection and analytics. Although infection rates are not controlled and effective treatment is not properly distributed, yet social restrictions are lifted in unlock . Some people and industries are return to work, with many safety measures to recover their economy.



For those essential workers who aren't able to stay home, Wireless sensor monitoring and insights can help reduce worker's risk. For example, rather than waiting until individuals test positive, Software can be used to help identify when area infection rates climb and redistribute workers to avoid infection in the first place.

Some specific ways our product is contributing to these efforts include tracking and prediction, and treatments and cures.

The current COVID-19 pandemic has impacted the world with over 18.35 million infections and over 6,96,147 deaths so far (as of 5th August 2020) [1]. Early identifying, isolation and care for patients is a key strategy for a better management of this pandemic. For controlling situation government conduct lockdown program due to that all world stops. COVID-19 is a global disaster affecting economies throughout the globe. Many industries see massive monetary losses, and businesses are going bankrupt. Banks are trying to meet the growing demand for loans, but whether they can meet the supply is yet to be seen. However, amidst all of these losses and blows to the global economy, stands the technology industry. To overcome such problem we proposed to make a pedant using which we can detect contacted people with Covid patients. This product is useful for big organizations, industries.

## **1.2 Problem Statement:**

- COVID-19 is a global disaster affecting economies throughout the globe. Many industries see massive monetary losses, and businesses are going bankrupt.
- Although unlock process is started still many industries facing problem due to increasing rate of Covid positive patients, it is not possible to close working after detection of individual positive employee.
- Also, it is difficult to find contacted employees with Covid positive employee.

### **1.3 Objectives:**

The main objectives of the project is listed below.

- ▶ To generate QR code for person identification.
- ▶ Superadmin to control activities of multiple company.
- ▶ To implement software who controls distance of a hardware device to detect persons.
- ▶ To develop the Pendant used as ID card to detect contacted people with COVID positive person. Device can be transmit and receive data and can save 2000 device data.

## **Chapter 2**

### **Literature Review**

**Paper [1] Ravneet Punia, Lucky Kumar, Mohd Mujahid, Rajesh Rohilla. Computer Vision and Radiology for COVID-19 Detection. 2020 International Conference For Emerging Technology(INCET).**

The author in this paper proposed to develop a method that uses radiology i.e. X-Rays for detecting the novel corona virus. Along with the paper they also release a dataset for the research community and further development extracted from various research medical hospital facilities treating Covid-19 patients.

**Paper [2] Halgurd S. Maghdid, Kayhan Zrar Ghafoor, Ali Safaa Sadiq, Kevin Curran, Danda B. Rawat, Khaled Rabie. A Novel AI enabled framework to diagnose corona virus COVID-19 using Smartphone Embedded sensors: Design study. 2020 IEEE Access.**

The author in this paper, a new framework is proposed to detect COVID-19 using built-in Smartphone sensors. The proposal provides a low-cost solution, since most of radiologists have already held smart phones for different daily- purposes. Not only that but also ordinary people can use the framework on their smart phones for the virus detection purposes.

**Paper [3] Quoc Viet Pham, Dinh C. Nguyen, Thien Huynh The, Won Joo HwNG, Pubudu N. Pathirana . Artificial Intelligence(AI) and Big Data for Corona Virus Pandemic: A survey on the state of the Arts. IEEE Access 2019 .**

The author proposed a application of AI for COVID-19 detection and diagnosis, tracking and identification of the outbreak, infodemiology and infoveillance biomedicine and pharmacotherapy.

**Paper [4] MICHAEL J. HERRY ,SUBRATA CHAKRABORTY,MANORANJAN PAUL, ANWAAR ULHAQ,BISWAJEET PRADHAN , MANAS SAHA ,AND NAGESH SHUKLA . COVID-19 Detection Through Transfer Learning Using Multimodal Imaging Data. Digital Object Identifier 10.1109/ACCESS.2020.**

In this study, we demonstrate how transfer learning from deep learning models can be used to perform COVID-19 detection using images from three most commonly used medical imaging modes X-Ray, Ultrasound, and CT scan. The aim is to provide over-stressed medical professionals a second pair of eyes through intelligent deep learning image classification models.

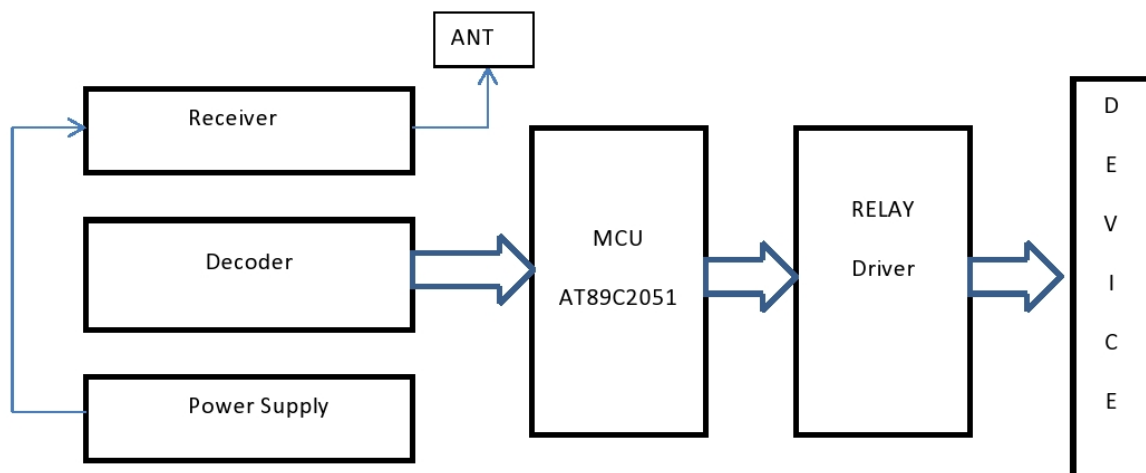
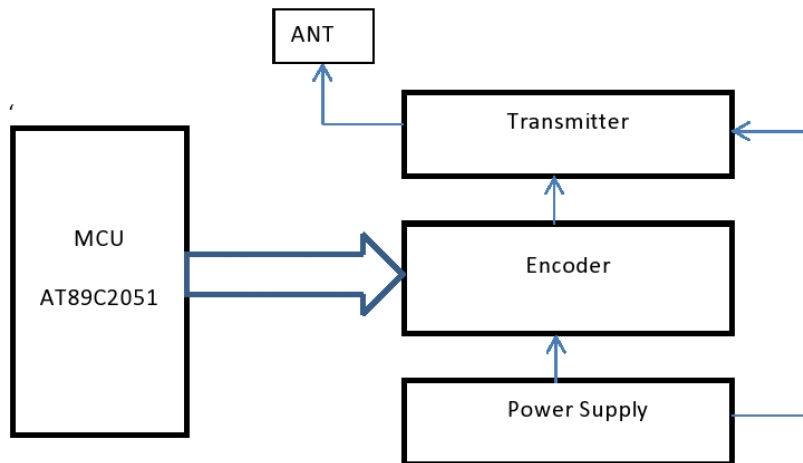
**Paper [5] Syed Sultan Mahmood, Pramod Sharma. IoT Based Industrial Automation using Zigbee communication standard. International Journal Of Innovative Technology and Exploring Engineering (IJITEE).**

The author proposed protocol to be used is ZigBee communication Protocol with the IoT service. IoT connect anything on the internet using a specific protocol with sensors, devices, equipment to transfer the information and to communicate among devices intelligently to achieve smart monitoring and administration.

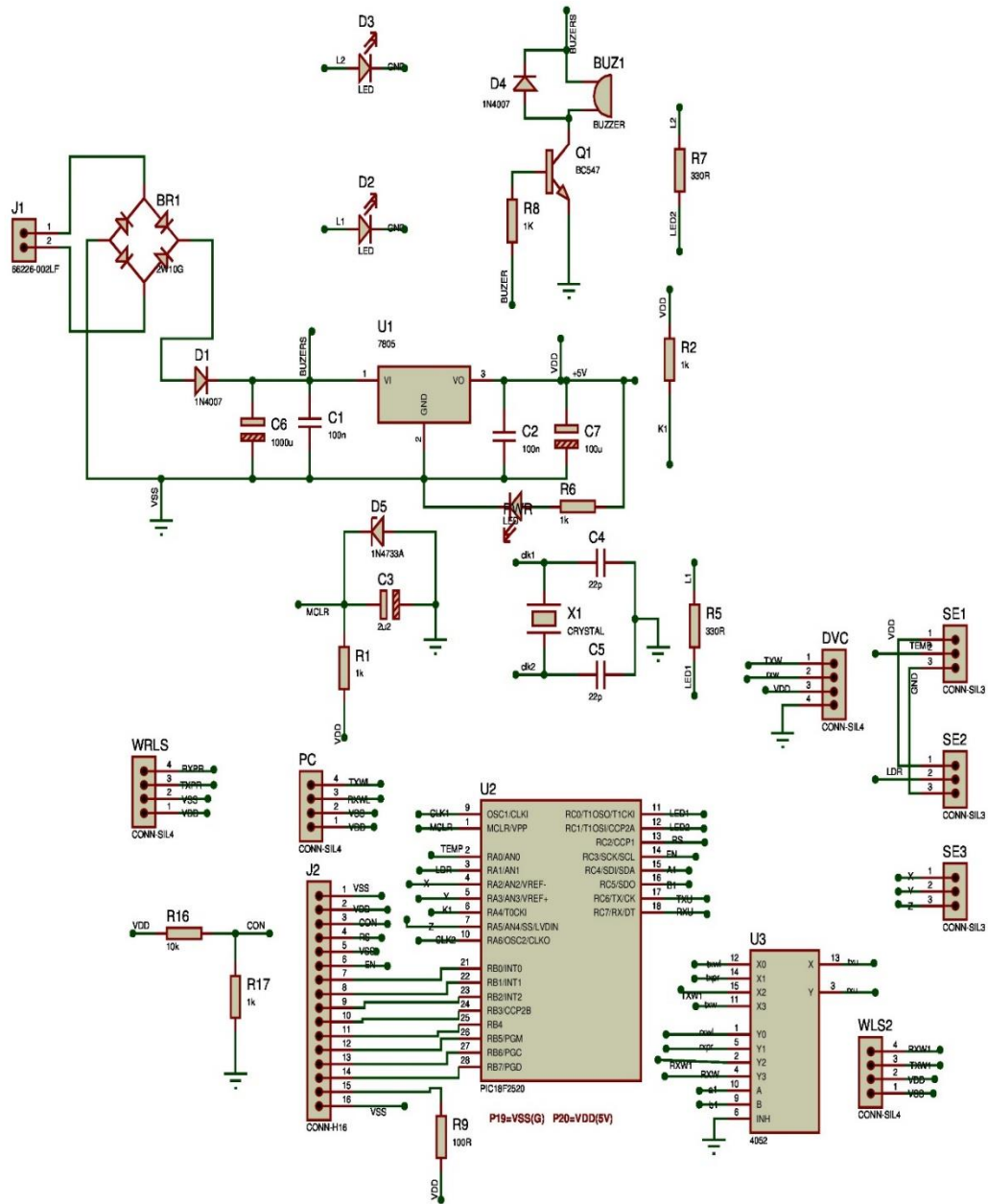
## Chapter 3

### Workdone

#### 3.1 BLOCK DIAGRAM



## 3.2CIRCUIT DIAGRAM



Schematic block diagram

### 3.3)System requirements:

- Hardware
- Transmitter and receiver sensor
- Software
- .NET
- Windows O.S
- MySQL

Quantity	References	Value	Order Code
09 REGISTERS			
4	R1, R2, R6, R17	1k $\Omega$	M1k
2	R5, R7	330 $\Omega$	M330R
1	R8	1K $\Omega$	M470R
1	R9	100 $\Omega$	M100R
1	R16	10K $\Omega$	M10K
07-CAPACITORS			
2	C1, C2	100NF	MaplinWW41U
1	C3,	2 $\mu$ F	Maplin AU10L
2	C4, C5	22pF	MaplinWX48C
1	C6	1K $\mu$ F	Maplin UQ31J
1	C7	100 $\mu$ F	Maplin VH38R
03-INTEGRATED CIRCUITS			
1	U1	7805	
1	U2	PIC18F2520	
1	U3	4052	
1 TRANSISTOR	Q1	BC547	
05-DIODES			
2	D1, D4		1N4007
2	D2, D3		LED
1	D5		1N4733A
13 MISCELLANEOUS			

1	BR1	2W10G	Digital-key 609-2176-ND
1	BUZ1	BUZZER	
4	DVC,PC,WLS2,WERLS	CONN-SIL4	
1	J1	66226002LF	
1	J2	CONN-H16	
1	PWR	LED	
3	SE1-SE3	CONN-SIL3	
1	X1	CRYSTAL	
BATTERY			
BUZZER			

### **Software Requirement:**

Technology: Microsoft .Net Technology  
Framework: Dot. Net Framework 4.5.2 , Bunifu Framework, Guna Framework  
Back End Language: VB.Net  
Database: Mysql (Web Server)  
IDE: Visual Studio 2015, MP Lab Software  
OS: Windows 7, Windows 10

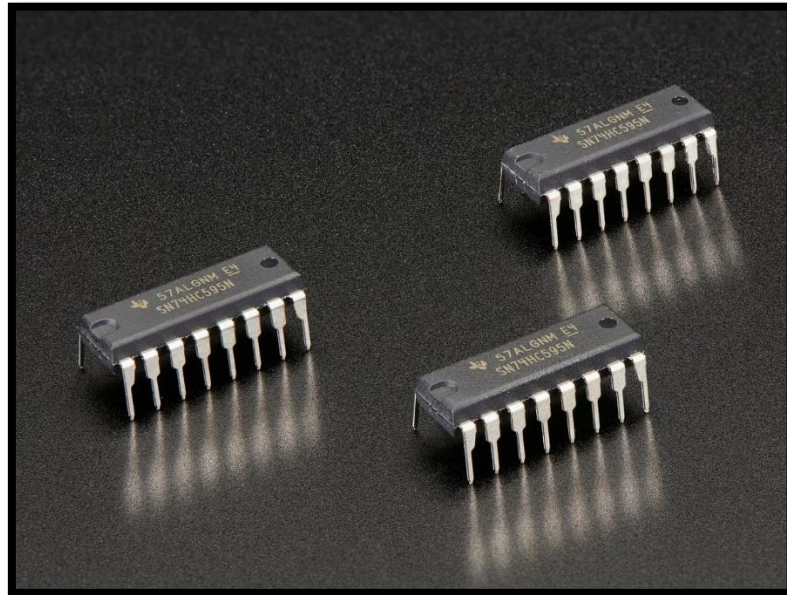
### **Hardware Requirement:**

Processor: Intel Dual Core  
RAM: 2 GB  
HDD: 160 GB



### 3.4)Component Description:

#### 1) Registers



**Fig.3.3 registers**

Registers are a type of computer memory used to quickly accept, store, and transfer data and instructions that are being used immediately by the CPU. The registers used by the CPU are often termed as Processor registers.

#### 2) Capacitors



**Fig.3.4 Capacitors**

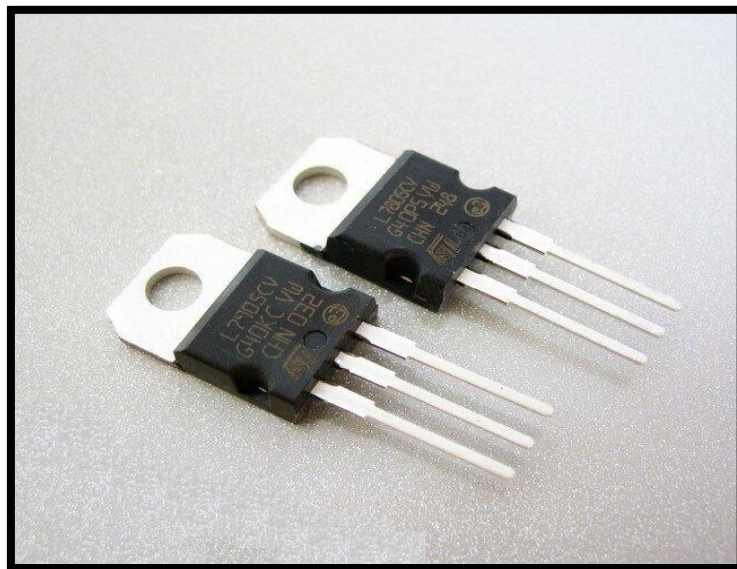
A **capacitor** (originally known as a **condenser**) is a passive two-terminal electrical component used to store energy electrostatically in an electric field. The forms of practical capacitors vary widely, but all contain at least

two electrical conductors (plates) separated by a dielectric (i.e., insulator). The conductors can be thin films of metal, aluminum foil or disks, etc. The 'nonconducting' dielectric acts to increase the capacitor's charge capacity. A dielectric can be glass, ceramic, plastic film, air, paper, mica, etc. Capacitors are widely used as parts of electrical circuits in many common electrical devices. Unlike a resistor, a capacitor does not dissipate energy. Instead, a capacitor stores energy in the form of an electrostatic field between its plates.

Capacitors are widely used in electronic circuits for blocking direct current while allowing alternating current to pass. In analog filter networks, they smooth the output of power supplies. In resonant circuits they tune radios to particular frequencies. In electric power transmission systems they stabilize voltage and power flow.

### 3) Integrated circuits

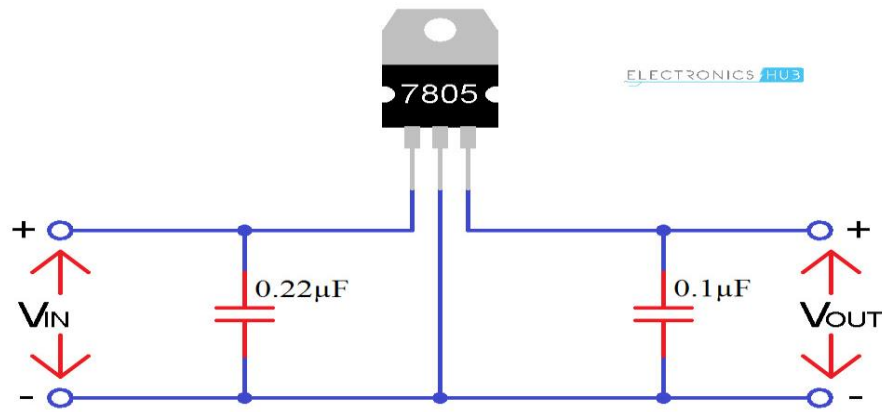
#### I. IC7805



**Fig.3.5 IC**

IC 7805 is a 5V Voltage Regulator that restricts the output voltage to 5V output for various ranges of input voltage. It acts as an excellent component against input voltage fluctuations for circuits, and adds an additional safety to your circuitry. It is inexpensive, easily available and very much commonly used. With few capacitors and this IC you can build pretty solid and reliable voltage regulator in no time. A Circuit diagram with pinout is given. It also comes with provision to add heatsink.

The maximum value for input to the voltage regulator is 35V. It can provide a constant steady voltage flow of 5V for higher voltage input till the threshold limit of 35V. If the input voltage is near to 7.2V to 12V then it does not produce any heat and hence no need of heatsink. Higher the input volts - the more it gets heated up, and excess electricity is liberated as heat from 7805. Hence the provision of heatsink. IC7805 also comes as smaller SMD component as well.



Basic Circuit of 7805

### Working:

The AC power supply from mains first gets converted into an unregulated DC and then into a constant regulated DC with the help of this circuit. The circuit is made up of transformer, bridge rectifier made up from diodes, linear voltage regulator 7805 and capacitors.

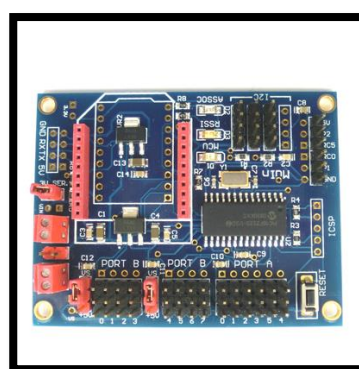
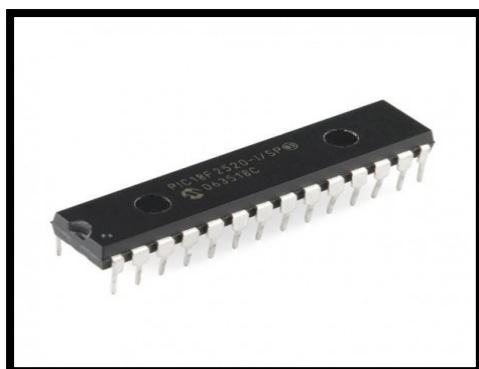
If you observe, the working of the circuit can be divided into two parts. In the first part, the AC Mains is converted into unregulated DC and in the second part, this unregulated DC is converted into regulated 5V DC. So, let us start discussing the working with this in mind.

Initially, a 230V to 12V Step down transformer is taken and its primary is connected to mains supply. The secondary of the transformer is connected to Bridge rectifier (either a dedicated IC or a combination of 4 1N4007 Diodes can be used).

A 1A fuse is placed between the transformer and the bridge rectifier. This will limit the current drawn by the circuit to 1A. The rectified DC from the bridge rectifier is smoothed out with the help of 1000μF Capacitor.

So, the output across the 1000μF Capacitor is unregulated 12V DC. This is given as an input to the 7805 Voltage Regulator IC. 7805 IC then converts this to a regulated 5V DC and the output can be obtained at its output terminals.

### II) PIC18F2520



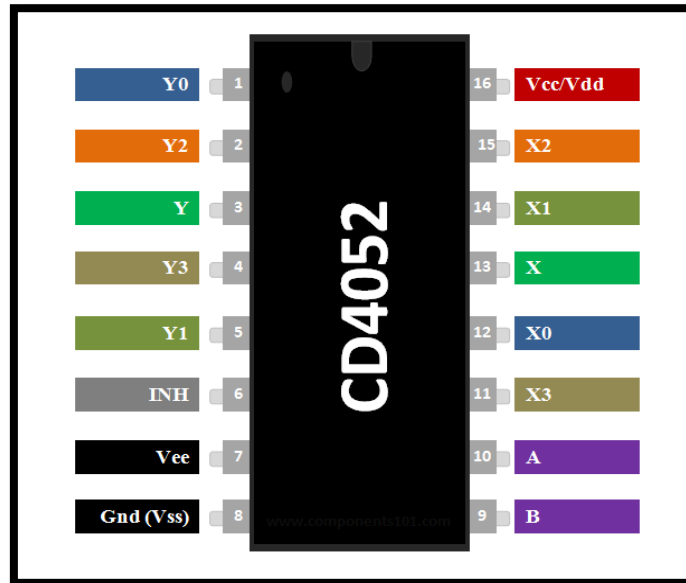
There are three types of memory in PIC18 enhanced microcontroller devices:

- Program Memory
- Data RAM
- Data EEPROM

As Harvard architecture devices, the data and program memories use separate busses; this allows for concurrent access of the two memory spaces. The data EEPROM, for practical purposes, can be regarded as a peripheral device, since it is addressed and accessed through a set of control registers. Additional detailed information on the operation of the Flash program memory is provided in Section 6.0 “Flash Program Memory”. Data EEPROM is discussed separately in Section 7.0 “Data EEPROM Memory”.

The Program Counter (PC) specifies the address of the instruction to fetch for execution. The PC is 21 bits wide and is contained in three separate 8-bit registers. The low byte, known as the PCL register, is both readable and writable. The high byte, or PCH register, contains the PC<15:8> bits; it is not directly readable or writable. Updates to the PCH register are performed through the PCLATH register. The upper byte is called PCU. This register contains the PC<20:16> bits; it is also not directly readable or writable. Updates to the PCU register are performed through the PCLATU register. The contents of PCLATH and PCLATU are transferred to the program counter by any operation that writes PCL. Similarly, the upper two bytes of the program counter are transferred to PCLATH and PCLATU by an operation that reads PCL. This is useful for computed offsets to the PC. The PC addresses bytes in the program memory. To prevent the PC from becoming misaligned with word instructions, the Least Significant bit of PCL is fixed to a value of ‘0’. The PC increments by 2 to address sequential instructions in the program memory. The CALL, RCALL, GOTO and program branch instructions write to the program counter directly. For these instructions, the contents of PCLATH and PCLATU are not transferred to the program counter.

### III) ICD4052



**Fig.3.6 ICD4052**

CD4052 is a dual 4-channel IC that can be used as both 4:1 multiplexer and 1:4 demultiplexer. It is a CMOS logic-based IC belonging to a CD4000 series of integrated circuits. We can use this IC in both digital and analog applications. In other words, it works for both analog and digital voltage levels. Furthermore, it is controllable through a digital control signal and offer very low resistance in ON state. It is available in a variety of 16-pin packages which includes PDIP, CDIP, SOIC and TSSOP.

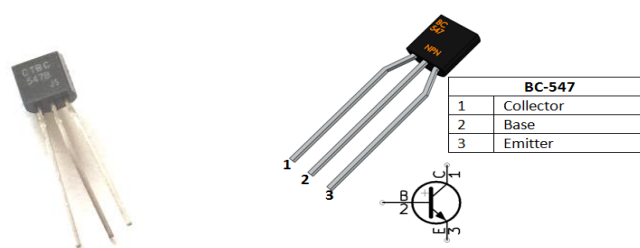
#### Pin Configuration Description

The IC CD4052 has total 16 pins. All the pins, their names, and description are given in the table below.

Pin Number	Pin Name	Description
16	Vdd	Positive power input, maximum 20V
7	Vee	Negative power rail, normally connected to ground.
8	Vss (Ground)	Connected to ground of the circuit
6	INH	Enable pin – Must be pulled to ground for normal operation
9,10	A,B	Channel Select pins

1,12	Y0,X0	Channel 0 Input / Output
5,14	Y1,X1	Channel 1 Input / Output
2,15	Y2,X2	Channel 2 Input / Output
4,11	Y3,X3	Channel 3 Input / Output
3,13	Y,X	Common Output / Input

#### 4) BC547 Transistor



**Fig.3.7 BC547 Transistor**

BC547 is a NPN transistor hence the collector and emitter will be left open (Reverse biased) when the base pin is held at ground and will be closed (Forward biased) when a signal is provided to base pin. BC547 has a gain value of 110 to 800, this value determines the amplification capacity of the transistor. The maximum amount of current that could flow through the Collector pin is 100mA, hence we cannot connect loads that consume more than 100mA using this transistor. To bias a transistor we have to supply current to base pin, this current ( $I_B$ ) should be limited to 5mA.

When this transistor is fully biased then it can allow a maximum of 100mA to flow across the collector and emitter. This stage is called Saturation Region and the typical voltage allowed across the Collector-Emitter ( $V_{CE}$ ) or Base-Emitter ( $V_{BE}$ ) could be 200 and 900 mV respectively. When base current is removed the transistor becomes fully off, this stage is called as the Cut-off Region and the Base Emitter voltage could be around 660 mV.

#### Pin Configuration

Pin Number	Pin Name	Description
1	Collector	Current flows in through collector

2	Base	Controls the biasing of transistor
3	Emitter	Current Drains out through emitter

#### BC547 Transistor Features

- Bi-Polar NPN Transistor
- DC Current Gain (hFE) is 800 maximum
- Continuous Collector current (IC) is 100mA
- Emitter Base Voltage (VBE) is 6V
- Base Current (IB) is 5mA maximum
- Available in To-92 Package

#### 5) ZENER DIODE-1N4733A

1N4733A is a normal p-n junction diode which allows the current to flow in both directions i.e. forward direction and reverse direction.

In other words, it conducts in both ways i.e. when it is forward biased, also when it is reverse biased.

In order to conduct in reverse biased condition, reverse breakdown voltage must be achieved.

Over a wide range of voltages, voltage drop across the zener diode doesn't change which makes it ideal for using for voltage regulation purpose.

Unlike normal diodes, zener diodes work in breakdown region and are best for generating reference voltage.

This zener diode comes with a highly doped p-n junction and sealed glass package that gives solid protection in all common atmospheric conditions.

It is widely used to prevent the electronic circuits from over voltage.

1N4733a comes with different voltage rating ranging from 3.3 V to 91 V.

It offers double slug construction which is corrosion resistant. And the leads that come with this zener diode are easily solderable and can withstand the maximum temperature up to 230 C.

It encompasses excellent working characteristics and have power of 1 W. The voltage tolerance appears to be 5%.

##### 1N4733A Feature

- Nominal Zener Voltage (VZ): 5.1V
- Power dissipation (PZ): 1300mW (practically 500mW)
- Zener regulator current (IZm): 178mA



- Package: DO-41

#### Working of 1n4733A

- Working principle of this zener diode is similar to common diode with slight difference.
- Zener diode 1n4733a acts like a normal diode in forward biased condition.
- It exhibits a turn on voltage that ranges between 0.3 to 0.7 V.
- It only conducts in the reverse direction when reverse voltage reaches to the breakdown voltage, allowing the current to flow from cathode to anode.
- Current reaches to maximum and stabilizes itself after a certain amount of time over a wide range of applied voltage which makes it suitable for using as a voltage stabilizer.
- Voltage breakdown occurs due to the Zener breakdown effect. It may also occur due to impact ionization. Both mechanism occur at 5.5 V., encompass same feature and don't need different circuitry in order to work perfectly. However, temperature coefficient of both mechanisms is different. Zener effect shows negative temperature coefficient and impact ionization shows positive temperature coefficient. Both effects cancel each other at 5.5 V, making the zener diode achieve the most stable state over a wide range of temperatures.

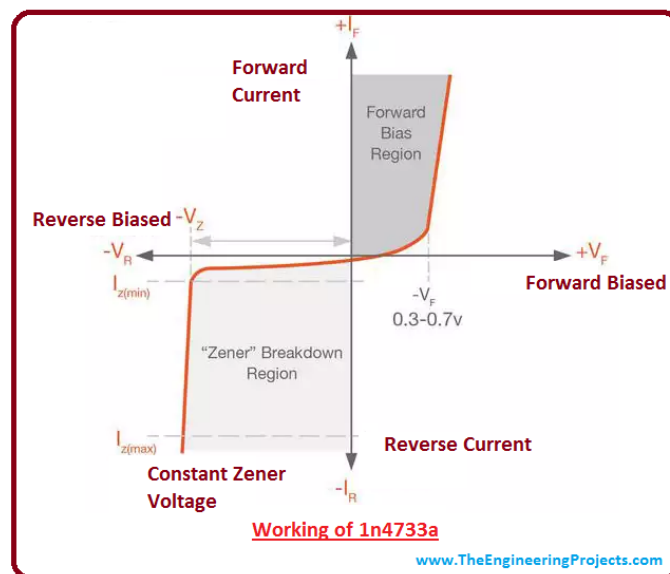


Fig.3.8



## 6) 1N4007 Diode (Rectifier Diode)

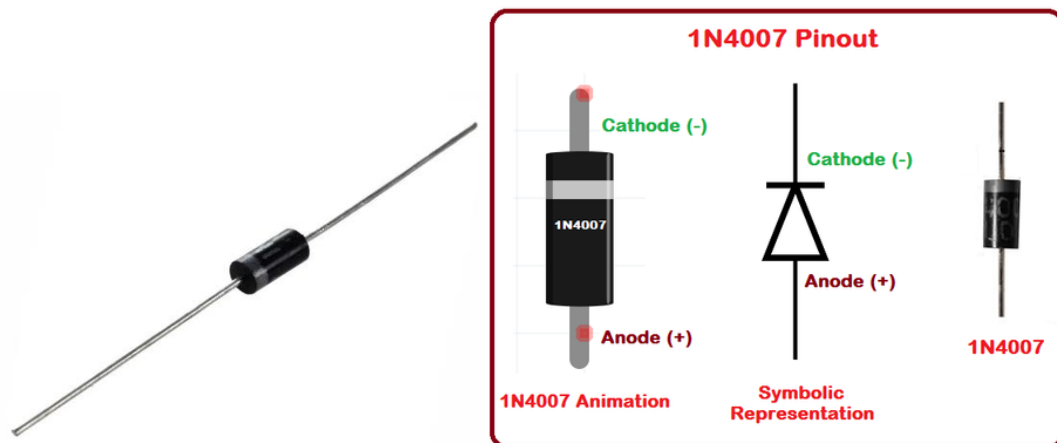


Fig.3.9 1N4007 Diode

1N4007 is a PN junction rectifier diode. These types of diodes only allow the flow of electric current in one direction. Therefore, it can be used for the conversion of alternating current (AC) to direct current (DC). The 1N4007 is electrically compatible with other rectifier diodes and can be used instead of any diode of the 1N400X series. The 1N4007 has various applications in real life. For example, applications of freewheeling diodes, general rectifying of power supplies, inverters, converters, etc. Moreover, it can also be used in any general purpose application where there is need of a general diode. The 1N4007 diode is built for working with high voltages and it can easily handle voltage below 1000V. The 1000mA or 1A average forward current, 3W power dissipation with small size and lost cost also makes it ideal for wide variety of applications.

## 1N4007 Rectifier Diode

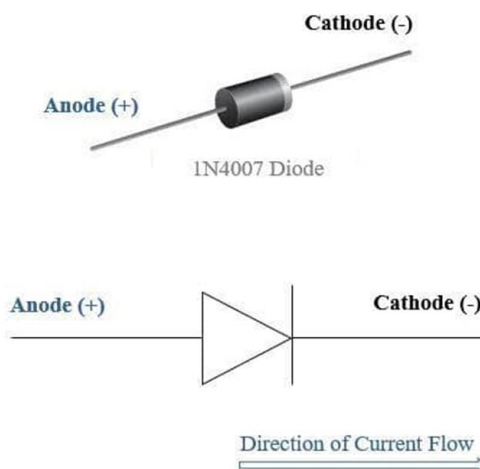
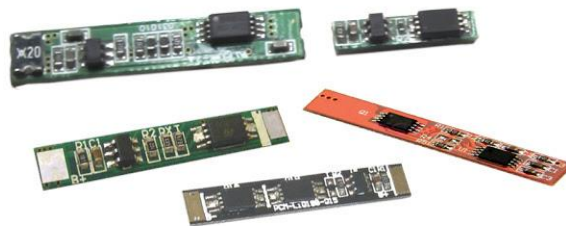


Fig.3.10

IN4007 Pinout		
Pin. No	Pin Name	Charge
1.	Anode	+ve
2.	Cathode	-ve

1N4007 can be used in variety of circuits, it is normally built for general purpose rectification purpose but it can also be used in any circuit where there is need of voltage blocking, blocking voltage spikes etc. It can also be used in digital logic circuits.

## 7)BATTERY:



**Fig.3.11 batteries**

Lithium-ion batteries are now the most efficient type of batteries they are compact has high energy intensity lack of parasitic memory effect but have one significant drawback the fact is that they are operating and the process of charging should be carefully monitored.

If the battery discharges below a certain limit there is a high probability that it will fail. The same is in the case of overcharging. The voltage of a fully charged lithium-ion battery is 4.2 volts. In this condition, recharging can cause blistering and even the explosion of the battery. The same will happen in the case of overload and short circuits.

The board which you noticed in the mobile phone batteries, that's protection board. The board protects from a deep discharge from overcharging and from short circuits or overcurrent. On the board, you can clearly see a couple of chips resistors and capacitors. The circuit is made by Field Effect Transistors. The board also protects from overheating and provides uniform charge by balancing the voltage.

### 8) BUZZER:

A **buzzer** or beeper is an audio signalling device, which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of **buzzers** and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.



**Fig.3.12 Buzzer**

## SOFTWARE DESCRIPTION:

### Framework:

#### 1).Net framework

**.Net Framework 4.5.2** is a software development platform developed by Microsoft for building and running Windows applications. The .Net framework consists of developer tools, programming languages, and libraries to build desktop and web applications. It is also used to build websites, web services, and games.

The .Net framework was meant to create applications, which would run on the Windows Platform. The first version of the .Net framework was released in the year 2002. The version was called .Net framework 1.0. The Microsoft .Net framework has come a long way since then, and the current version is .Net Framework 4.7.2.

The Microsoft .Net framework can be used to create both - **Form-based** and **Web-based** applications. Web services can also be developed using the .Net framework.

The framework also supports various programming languages such as Visual Basic and C#. So developers can choose and select the language to develop the required application. The .NET Framework includes a set of standard class libraries. A class library is a collection of methods and functions that can be used for the core purpose.

#### 2)Bunifu framework:

**Bunifu Framework** helps software developers and companies globally create modern, stunning software interfaces and user experience. The product supports WinForms for C# and VB.NET developers. The features are carefully crafted with the developer in mind to provide speed and simplicity.

unifu UI Controls are DLL driven tools to help you build awesome desktop application interfaces. It guarantees great user experience in your apps and reduces development time for Microsoft Visual Studio .NET software developers.

We currently target C# and VB.NET languages and the product is offered as a DLL imported into your visual studio environment.

The DLLs are installed in your .NET environment and is built on top of WinForms. It enables developers to drag and drop hence faster coding!.It empower developers to:

- 1) Improve productivity
- 2) Built modern stunning designs

It guarantees great user experience in your apps and reduces development time. The DLLs are installed in our .NET environment and is built on top of WinForms. It enables developers to drag and drop hence faster coding.

### **3)GUNA FRAMEWORK:**

Guna UI is the suite for creating groundbreaking desktop app UI. It is for developers targeting the .NET Windows Forms platform. Guna UI guarantees faster development and improved productivity.

#### **Requirements**

##### **Minimum System and User Requirements**

Guna UI currently work with C# and VB.NET languages, specifically and specially designed for Windows Forms applications.

To effectively get the most out of our tools, our system needs to meet the following minimum requirements:

- Runs on Windows.
- Microsoft .NET Framework 4.0 or higher.
- Visual Studio 2012 or later (recommended).

As a developer, one need to:

- Have a basic knowledge of C# or VB.NET.
- Have a basic knowledge of Windows Forms.

### **4)BACKEND LANGUAGE-VB.NET**

VB.NET is a multi-paradigm programming language developed by Microsoft on the .NET framework. It was launched in 2002 as a successor to the Visual Basic language. This was the first version of VB.NET (VB.NET 7.0) and it relied on .NET version 1.0. Microsoft's integrated development environment (IDE) for developing in Visual Basic is Visual Studio. Most Visual Studio editions are commercial; the only exceptions are Visual Studio Express and Visual Studio Community, which are freeware. In addition, the .NET Framework SDK includes a freeware command-line compiler called `vbc.exe`. Mono also includes a command-line VB.NET compiler.

Visual Basic is often used in conjunction with the Windows Forms GUI library to make desktop apps for Windows. Programming for Windows Forms with Visual Basic involves dragging and dropping controls on a form using a GUI designer and writing corresponding code for each control.

VB.NET comes loaded with numerous features that have made it a popular programming language amongst programmers worldwide. These features include the following:

- VB.NET is not case sensitive like other languages such as C++ and Java.
- It is an object-oriented programming language. It treats everything as an object.

- Automatic code formatting, XML designer, improved object browser etc.
- Garbage collection is automated.
- Support for Boolean conditions for decision making.
- Simple multithreading, allowing your apps to deal with multiple tasks simultaneously.
- Simple generics.
- A standard library.
- Events management.
- References. You should reference an external object that is to be used in a VB.NET application.
- Attributes, which are tags for providing additional information regarding elements that have been defined within a program.
- Windows Forms- one can inherit form from an already existing form.

#### Advantages:

- Code will be formatted automatically.
- One will use object-oriented constructs to create an enterprise-class code.
- One can create web applications with modern features like performance counters, event logs, and file system.
- One can create our web forms with much ease through the visual forms designer. You will also enjoy drag and drop capability to replace any elements that you may need.
- One can connect our applications to other applications created in languages that run on the .NET framework.
- One will enjoy features like docking, automatic control anchoring, and in-place menu editor all good for developing web applications.

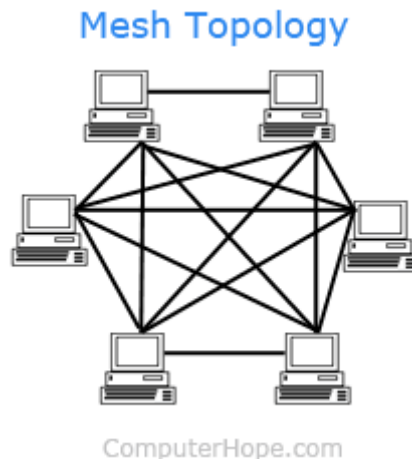
## 5)DATABASE:

MySQL is an open-source relational database management system (RDBMS). A relational database organizes data into one or more data tables in which data types may be related to each other; these relations help structure the data. SQL is a language programmers use to create, modify and extract data from the relational database, as well as control user access to the database. In addition to relational databases and SQL, an RDBMS like MySQL works with an operating system to implement a relational database in a computer's storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups.

MySQL is free and open-source software under the terms of the GNU General Public License, and is also available under a variety of proprietary licenses. The application is used for a wide range of purposes, including data warehousing, e-commerce, and logging applications. The most common use for MySQL however, is for the purpose of a web database.

## 6)Mesh topology

A mesh topology is a network setup where each computer and network device is interconnected with one another. This topology setup allows for most transmissions to be distributed even if one of the connections goes down. It is a topology commonly used for wireless networks. Below is a visual example of a simple computer setup on a network using a **mesh topology**.



**Fig.3.13 Mesh topology**

### Different types of mesh topology

There are two forms of this topology: full mesh and a partially-connected mesh.

In a *full mesh topology*, every computer in the network has a connection to each of the other computers in that network. The number of connections in this network can be calculated using the following formula ( $n$  is the number of computers in the network):  $n(n-1)/2$

In a *partially-connected mesh topology*, at least two of the computers in the network have connections to multiple other computers in that network. It is an inexpensive way to implement redundancy in a network. If one of the primary computers or connections in the network fails, the rest of the network continues to operate normally.

### Advantages of a mesh topology

- Manages high amounts of traffic, because multiple devices can transmit data simultaneously.
- A failure of one device does not cause a break in the network or transmission of data.
- Adding additional devices does not disrupt data transmission between other devices.

## Disadvantages of a mesh topology

- The cost to implement is higher than other network topologies, making it a less desirable option.
- Building and maintaining the topology is difficult and time consuming.
- The chance of redundant connections is high, which adds to the high costs and potential for reduced efficiency.

## Wireless Sensor Network

**Wireless sensor networks (WSNs)** refer to networks of spatially dispersed and dedicated sensors that monitor and record the physical conditions of the environment and forward the collected data to a central location. WSNs can measure environmental conditions such as temperature, sound, pollution levels, humidity and wind.

These are similar to wireless ad hoc networks in the sense that they rely on wireless connectivity and spontaneous formation of networks so that sensor data can be transported wirelessly. WSNs monitor physical or environmental conditions, such as temperature, sound, and pressure. Modern networks are bi-directional, both collecting data and enabling control of sensor activity. The development of these networks was motivated by military applications such as battlefield surveillance. Such networks are used in industrial and consumer applications, such as industrial process monitoring and control and machine health monitoring.

A WSN is built of "nodes" – from a few to hundreds or thousands, where each node is connected to other sensors. Each such node typically has several parts: a radio transceiver with an internal antenna or connection to an external antenna, a microcontroller, an electronic circuit for interfacing with the sensors and an energy source, usually a battery or an embedded form of energy harvesting. A sensor node might vary in size from a shoebox to (theoretically) a grain of dust, although microscopic dimensions have yet to be realized. Sensor node cost is similarly variable, ranging from a few to hundreds of dollars, depending on node sophistication. Size and cost constraints constrain resources such as energy, memory, computational speed and communications bandwidth. The topology of a WSN can vary from a simple star network to an advanced multi-hop wireless mesh network. Propagation can employ routing or flooding.

### Characteristics:

---

The main characteristics of a WSN include

- Power consumption constraints for nodes using batteries or energy harvesting. Examples of suppliers are Re-Vibe Energy and Perpetuum
- Ability to cope with node failures (resilience)
- Some mobility of nodes (for highly mobile nodes see MWSNs)
- Heterogeneity of nodes
- Homogeneity of nodes
- Scalability to large scale of deployment
- Ability to withstand harsh environmental conditions



- Ease of use
- Cross-layer optimization - Cross-layer is becoming an important studying area for wireless communications. In addition, the traditional layered approach presents three main problems:
  1. Traditional layered approach cannot share different information among different layers, which leads to each layer not having complete information. The traditional layered approach cannot guarantee the optimization of the entire network.
  2. The traditional layered approach does not have the ability to adapt to the environmental change.
  3. Because of the interference between the different users, access conflicts, fading, and the change of environment in the wireless sensor networks, traditional layered approach for wired networks is not applicable to wireless networks.

So the cross-layer can be used to make the optimal modulation to improve the transmission performance, such as data rate, energy efficiency, quality of service (QoS), etc. Sensor nodes can be imagined as small computers which are extremely basic in terms of their interfaces and their components. They usually consist of a *processing unit* with limited computational power and limited memory, *sensors* or MEMS (including specific conditioning circuitry), a *communication device* (usually radio transceivers or alternatively optical), and a power source usually in the form of a battery. Other possible inclusions are energy harvesting modules, secondary ASICs, and possibly secondary communication interface (e.g. RS-232 or USB).

The base stations are one or more components of the WSN with much more computational, energy and communication resources. They act as a gateway between sensor nodes and the end user as they typically forward data from the WSN on to a server. Other special components in routing based networks are routers, designed to compute, calculate and distribute the routing tables.

Wireless Sensor Networks (WSNs) provide several types of applications providing comfortable and smart-economic life. Energy saving minimizing the rare sources of energy, noise and atmospheric monitoring reducing the pollution, and healthcare monitoring helping the health are examples of important applications in WSNs.

Sensors, in their most general form, are systems possessing a variable number of components. Three basic components have already been identified: a sensor element, sensor packaging and connections, and sensor signal processing hardware. However, there are additional components to certain sensors

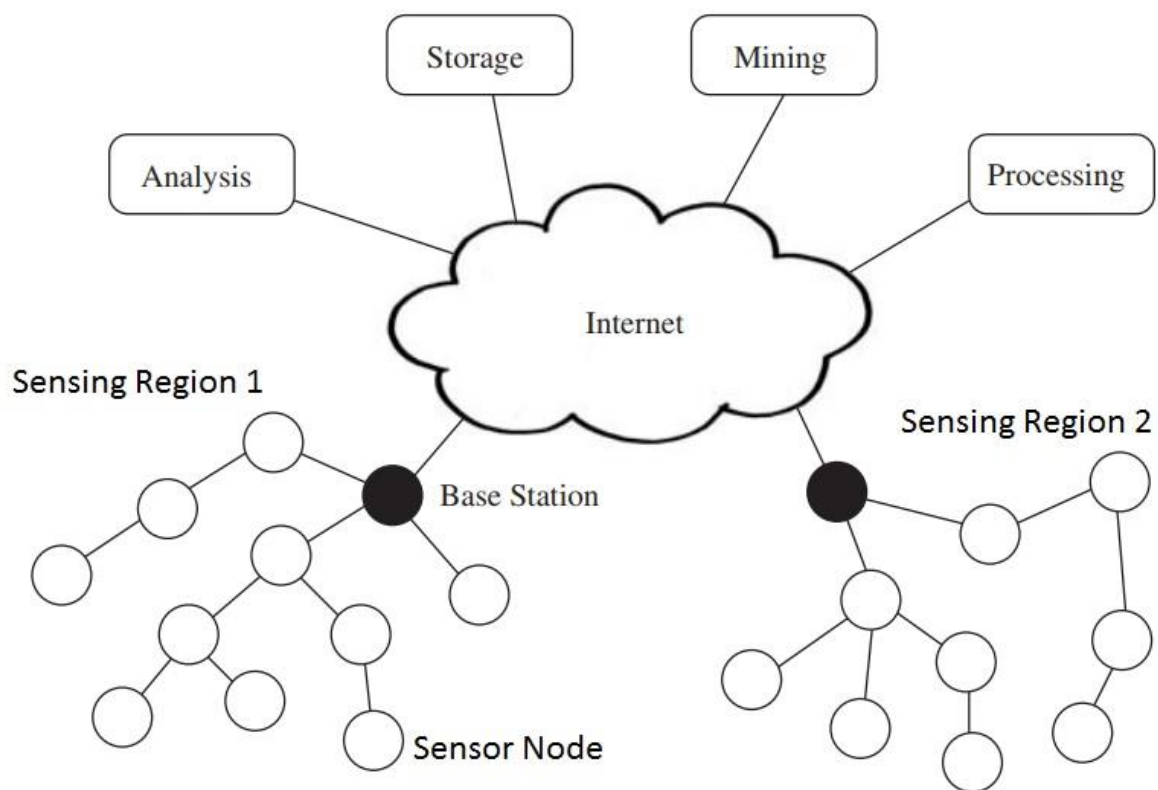


Fig.3.14 WSN

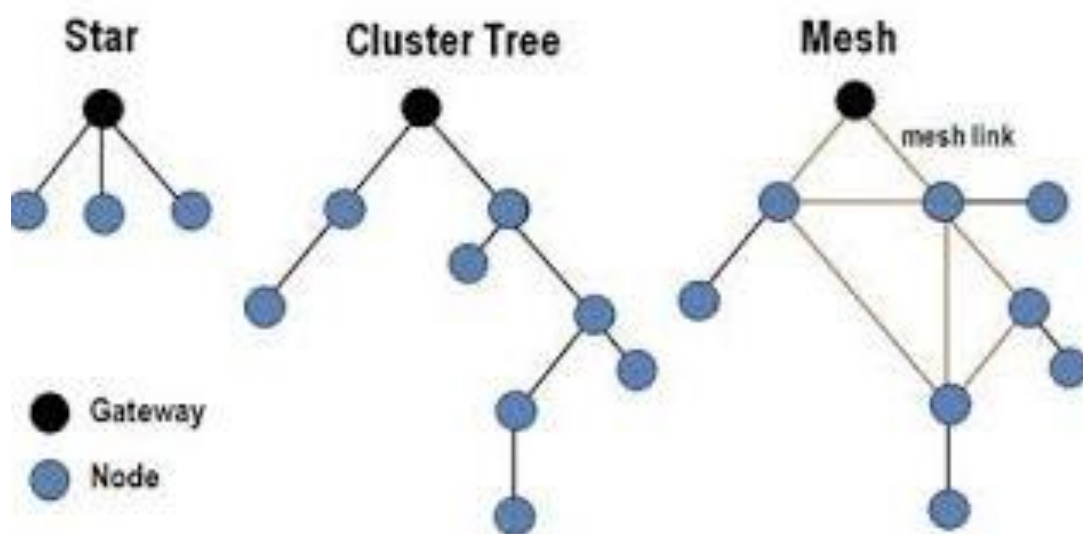


Fig.3.15

Wireless communication is the transfer of information between two or more points that are not connected by an electrical conductor. In this paper we discuss wireless communication using RF module and interfacing RF with 8051 microcontroller. An RF module (radio frequency module) is a small electronic device used to transmit and/or receive radio signals between two devices. This wireless communication may be accomplished through radio frequency (RF) communication. RF communications incorporate a transmitter or receiver which when interfaced with 8051 microcontrollers provides us with various controlled operations.

The RF module, as the name suggests, operates at Radio Frequency. The corresponding frequency range varies between 30 kHz & 300 GHz. In this RF system, the digital data is represented as variations in the amplitude of carrier wave. This kind of modulation is known as amplitude shift keying modulation. This RF module comprises of an RF Transmitter and an RF Receiver. The transmitter/receiver (Tx/Rx) pair operates at a frequency of 434 MHz. An RF transmitter receives serial data and transmits it wirelessly through RF through its antenna connected at pin4. The transmission occurs at the rate of 1Kbps - 10Kbps. The transmitted data is received by an RF receiver operating at the same frequency as that of the transmitter. The RF module is often used along with a pair of encoder/decoder. The encoder is used for encoding parallel data for transmission feed while reception is decoded by a decoder. HT12E-HT12D, HT640-HT648, etc. are some commonly used encoder/decoder pair ICs.

## **RF TRANSMITTER AND RF RECEIVER**

RF transmitter receives serial data and transmits to the receiver through an antenna which is connected to the 4th pin of the transmitter. When logic 0 is applied to transmitter then there is no power supply in transmitter. When logic 1 is applied to transmitter then transmitter is ON and there is a high power supply in the range of 4.5mA with 3V voltage supply. HT12E Encoder IC will convert the 4 bit parallel data given to pins D0 – D3 to serial data and will be available at DOUT. This output serial data is given to ASK RF Transmitter. Address inputs A0 – A7 can be used to provide data security and can be connected to GND (Logic ZERO) or left open (Logic ONE). Status of these Address pins should match with status of address pins in the receiver for the transmission of the data. Data will be transmitted only when the Transmit Enable pin (TE) is LOW. 1.1MΩ resistor will provide the necessary external resistance for the operation of the internal oscillator of HT12

## **Working:**

The I-trace device is a moving device wirelessly controlled by one transmitting unit and a receiving unit for its moment. In this we used HT12E encoder which converts 4 bit data to serial output. As explained above this is then fed to the RF module for transmitting the same to be received by the receiver. The RF module the output is fed to HT12D the serial decoder IC, the output of which is fed to microcontroller pin 1 to 4. The transmitting end microcontroller is connected to a switches to its port 3 of 20 pin microcontroller AT89C2051. Thus while a particular device in range the program is executed to deliver corresponding 4-bit data which are then transmitted and received wirelessly data at bidirectional as explained above.

## **How does device to device communication works?**

What is device to device communication?

Device to device communication is an advanced data transmission technology developed to increase the efficiency of network. In D2D communication enabled devices can interact each other using a transmission protocol similar to the devices communicate with the radio frequency .

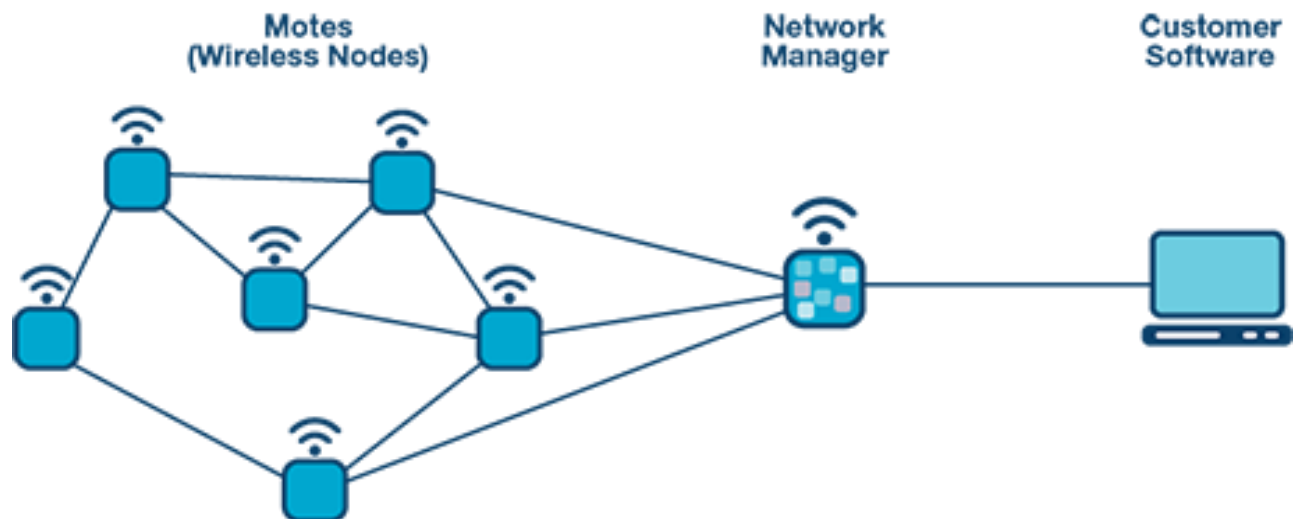
## **Where D2D is required?**

In order to have a stable communication and uninterrupted service, devices must be within the proximity of another device. Proximity doesn't only refer to physical distance, often referenced as signal strength received at another device.

Due to higher interference from surroundings and sometimes due to signal blocking physical structure like concrete walls or locations like basement, received signal strength would be lower than required. Device to device communication technology is a best solution to improve the signal proximity scenario.

If any device is connected to the RF network, it can act as a relay one device to other device(s) not under direct proximity of base station to establish a connection to the core network.

## How does D2D communication works?



**Fig.3.16 D2D working**

Device to device communication can be achieved in multiple modes of operation depends on the scenarios. According to the situation, most suitable operation mode will be chosen to establish efficient transmission.

**Scenario 1:** If two devices are in range, they can start communication like data transmission and receiving. This helps to improve data rate, reduce power consumption of devices. The control will be handled by transmission device and received device.

**Scenario 2:** During the absence of an active device network connection or insufficient signal reception, D2D enabled devices can establish an alternative communication interface with its surrounding devices which are connected all presence device. It will help the node with no coverage to maintain a connection to the device network.

# 1. Experimental Configurations

## 1.1 Performance Metrics

In this paper, the node connectivity, packet loss rate, and transmission throughput are used as the performance metrics. (i) *Node Connectivity*. In our work, if a node can send out packets to the coordinator within a specified period of time, the node is defined as “connected.” Otherwise, the node is “disconnected.” Obviously, if more nodes in a sensor network are connected, the network is more stable. (ii) *Packet Loss Rate*. The packet loss rate of a node is defined as the number of packets lost by the coordinator divided by the number of packets transmitted by the node. The less a packet loss rate is, the better a network performance is. Moreover, the ZigBee standard provides an optional acknowledged service in application support sublayer (APS) for reliable transmission. (iii) *Transmission Throughput*. For simplicity, the transmission throughput is measured under a two-hop communication (from a sensor to the coordinator) in our experiments. In a specific period, the more packets received by the coordinator results in a higher transmission throughput.

## 1.2 Node Deployment

The experimental network structure is presented in Figure . The coordinator stores data received from each node in an MySQL database of a gateway server via RS-232 port. Meanwhile, there is a sniffer near the coordinator (within one hop) to show and record the over-the-air data.

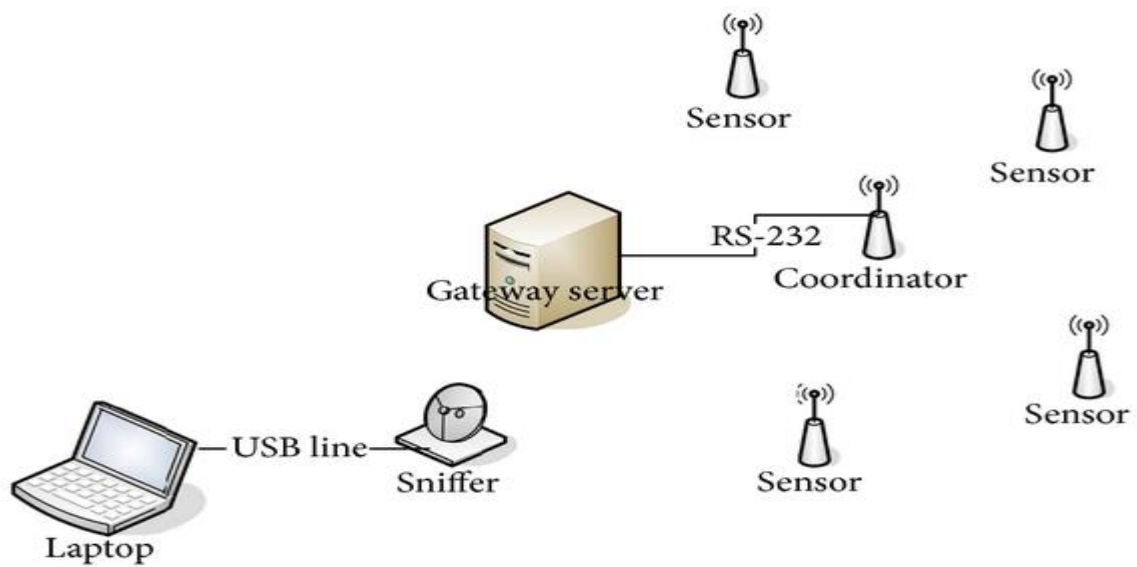


Fig 3.17 Experimental network structure

### 1.3 Transmitted Packets

Figure, shows the content of sniffed data packets during transmission. The APS overhead in packets used for analyzing network performance is 12 bytes (8 bytes for destination address and 4 bytes for serial number), and the APS payload in a packet is 64 bytes. Moreover, with the overhead of other protocol layers (network, MAC, and physical layers), the total data size of a packet is 91 bytes.

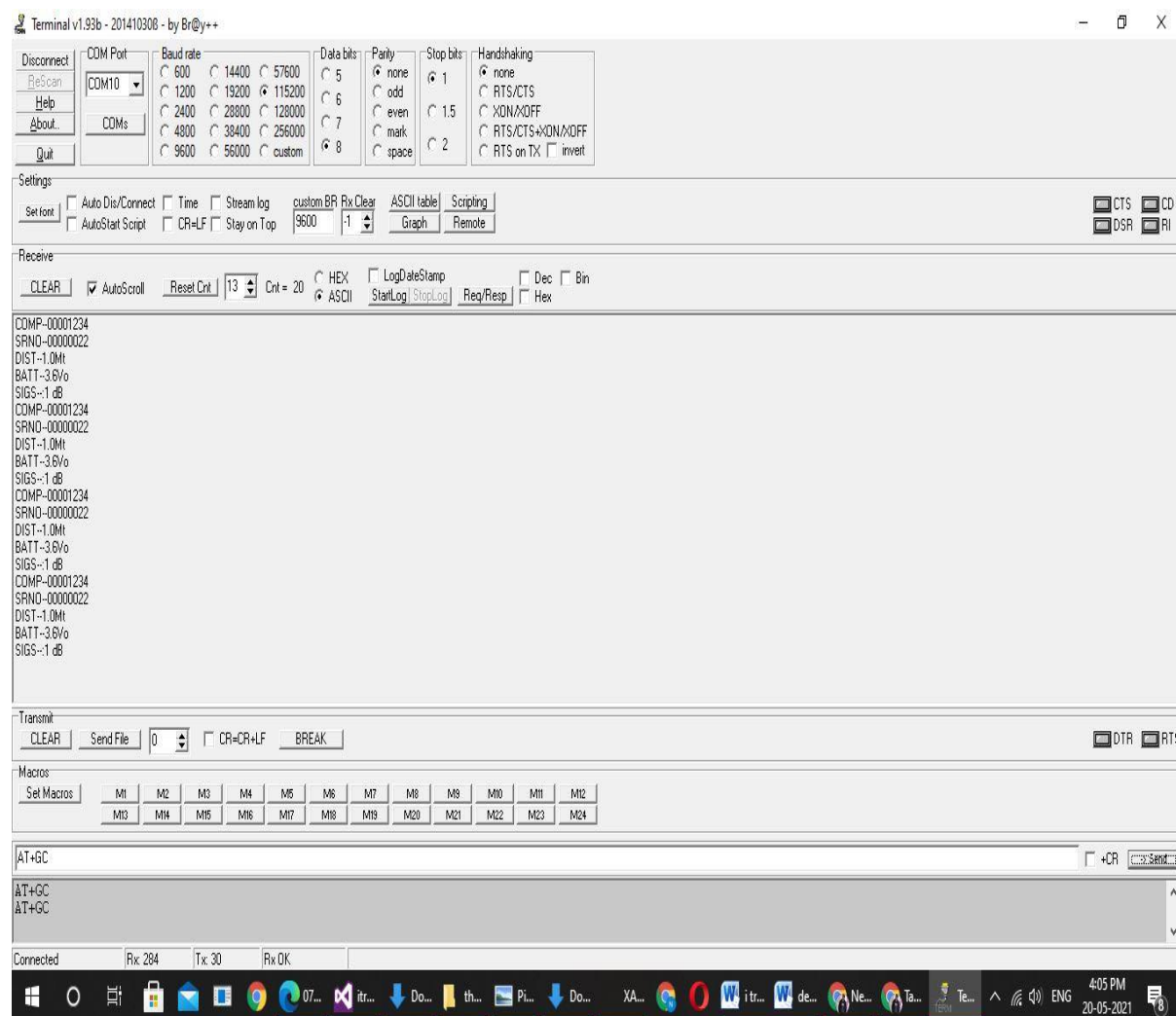


Fig 3.18 Sniffed packet: the packet size used for performance analysis is 91 bytes.



## 2. Experimental Results

### 2.1. Node Connectivity

In this experiment, the transmission rate is 1 packet per 10 seconds for each node, and the operation time is daily. As defined before, if a node can send out packets to the coordinator within a specified period of time, the node is defined as connected. Figure shows the average number maximum node of disconnections when device out of range. Obviously.

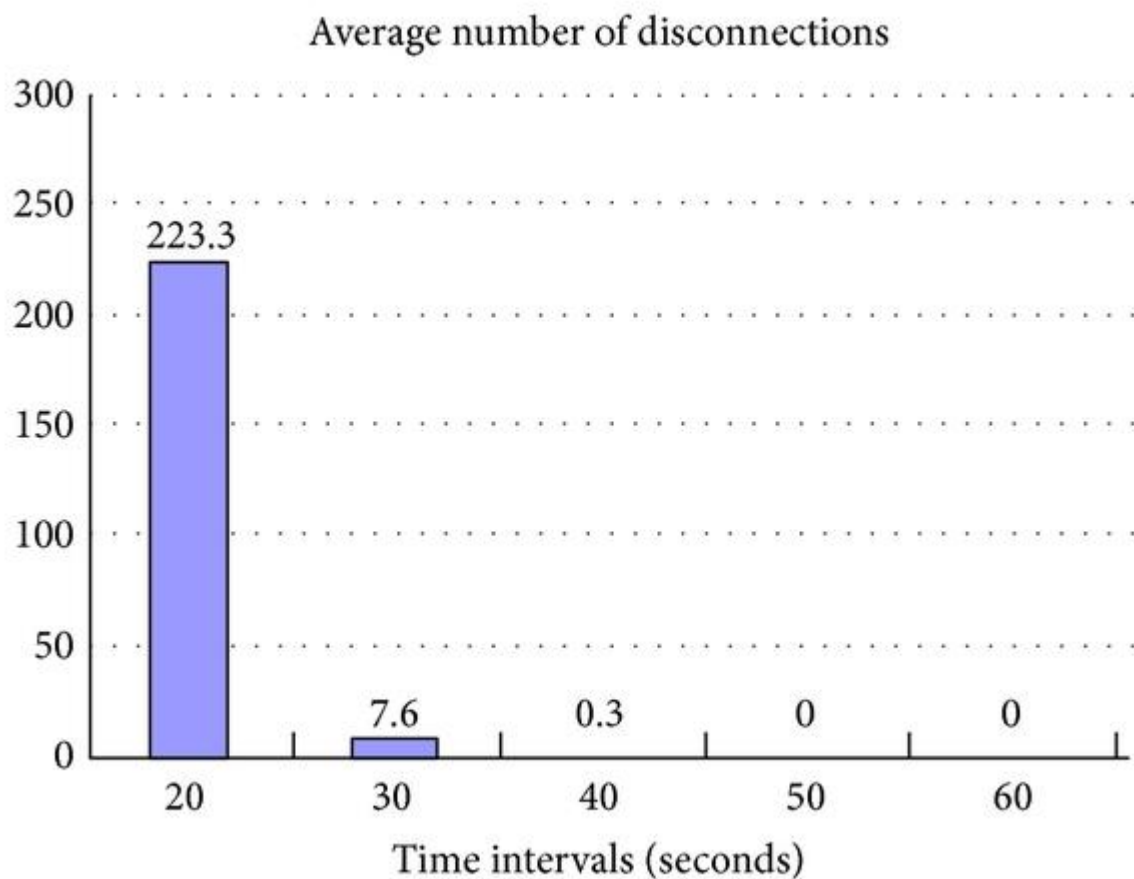


Fig.3.19

## 2.2. Packet Loss Rate

The average packet loss rate maximum device with varied operation time has been recorded as shown in Figure . In this experiment, the transmission rate is 1 packet per 10 minutes for each node . When the operation is daily basis, the packet loss rate has the highest value.

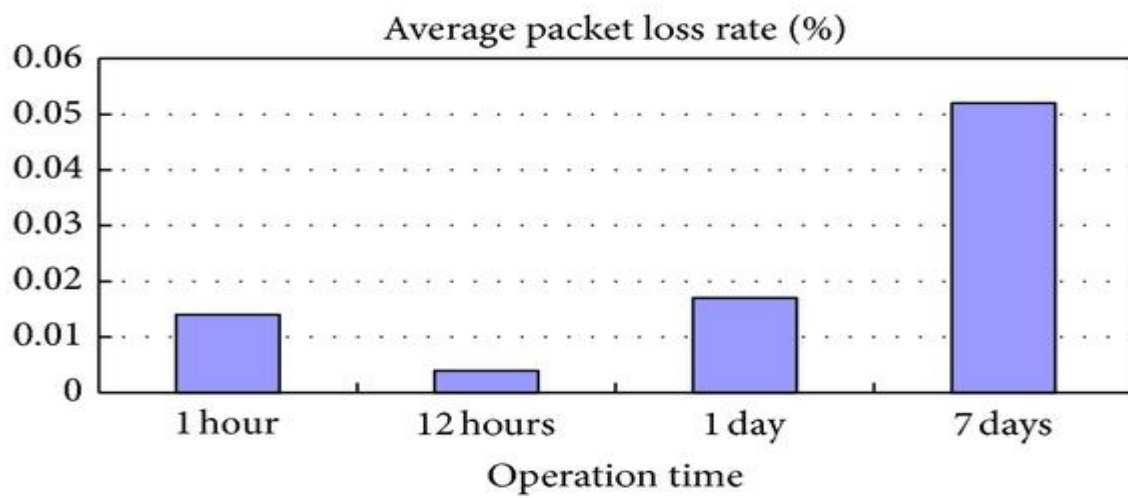


Fig.3.20

### 2.3. Transmission Throughput

In this experiment, the transmitted packets are with and without APS ACK. The empirical results are shown in Table 1. If the APS ACK is applied, the coordinator totally received 1300 packets in 27 seconds, indicating the transmission rate is 24.65 Kbits/sec. As the transmission is without APS ACK, the result shows the coordinator receives fewer packets at the similar transmission rate.

	With APS ACK	Without APS ACK
Number of packets received by the Coordinator	1300	1097
Duration (second)	27	23
Transmission rate (Kbps)	24.65	24.42

Figure:3.21 Empirical results of transmission throughput.

The spread of low-power analog and digital circuits and the development of RF device systems has enabled numerous breakthroughs in wearable devices; increasing lifetime, reducing maintenance and cost, and mitigating environmental problems associated with batteries. RF energy is a promising source for RF device since cellular, Wifi, and radio broadcast networks are readily available, especially in urban areas. RF device depends on two main components: the antenna must efficiently capture ambient RF signals and the power management circuits must efficiently generate voltages required by the system. Several papers focus on improving

antenna performance, e.g. [1] demonstrates a tri-band antenna at 900 MHz, 1900 MHz, and 2.4 GHz, whereas [2] utilizes a large magnetically-coupled coil antenna to increase efficiency. Power management circuits typically focus on low-power conditioning and energy storage such as matching networks, RF-DC converters, and DC-DC boost converters.

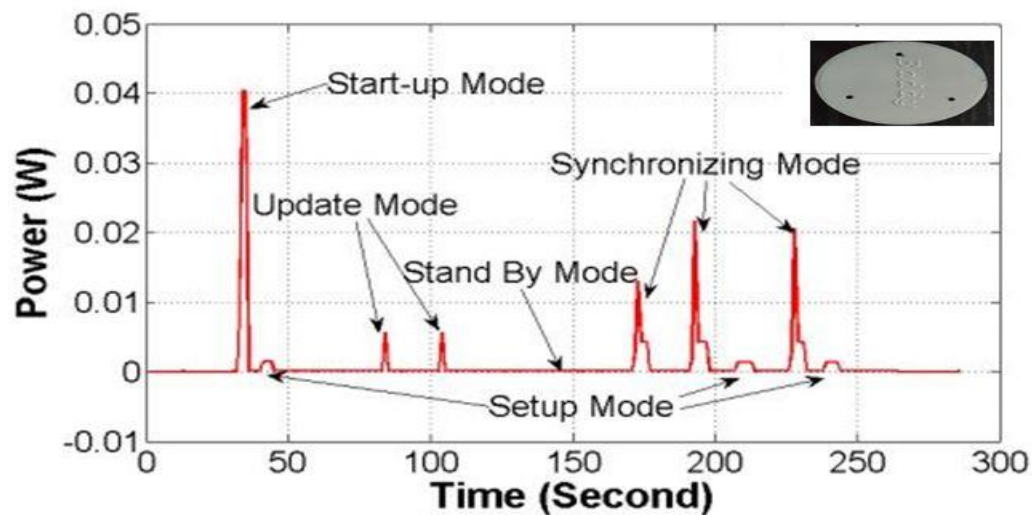


Fig. 3.22. Measured Misfit fitness monitor power consumption.

Recently, smart pendant has received significant interest from industry. pendant with wireless electronic data and activity tracking monitors inside their pendants. Fig. 1 shows the measured power consumption of the pendant operating in different modes, showing the pendant operates most often in stand-by. stand-by power is approximately 100  $\mu$ W. Current pendant are bulky and require battery replacement depend on battery life. To overcome these problems, this paper proposes an RF device pendant ( which converts a 915 MHz input to a DC supply suitable for loads such as the fitness monitor. In this system, the RF-DC converter design is important because while the DC-DC boost converter obtains a high efficiency, up to 80%, the RF-DC converter has substantially lower efficiency. Several papers use Cockroft-Walton RF-DC converters (also called the Villard Doubler) in their RF harvesting systems, while others employ Dickson converters. Yan et al. briefly compares both converters and concludes that there is no significant difference between the two topologies; however, his converters are limited to two stages only. After reviewing the antenna design, this paper compares both RF-DC converters. Next, pendant system experiments are described before drawing conclusions.

## Conclusion:

It presents the practical performance of a RF wireless network with multi device transmission in an company premises during a long-term operation time. Maximum pendent nodes are deployed in a company environment. Several sets of practical experiments are conducted to study its various features, including the (1) node connectivity, (2) packet loss rate, and (3) transmission throughput. The results show that our developed **radio frequency** platforms could work well under multi-hop transmission over an extended period of time.

The overall goal of this paper is to contribute and help through realistic measurements towards the dimensioning of the sensor networks for future applications using RF technology. The developed ITRI ZBnodes are employed for realistic experiments. During our experiments, we found that the achieved transmission rate is around 25 kbps. Note that this is substantially below the nominal value of 250 kbps, and reasons may be due to the transmission overhead (such as frame headers), the CSMA-CA random backoffs, the presence of interframe spacing, and the concurrent transmission of multiple nodes.

#### 4)QR algorithm:

a) Key pair Generation Algorithm: (GenKeys)

STEP 1: Start

STEP 2: Create a Key Pair<sup>[2]</sup>

STEP 3: Initialize the Key Pair randomly

STEP 4: Generate the Private Key and Public Key

STEP 5: Write Base64 encoded private and public key to “privkey.txt” and “pubkey.txt”

STEP 6: End

b) Digital Signature Generation Algorithm: (GenSig)

STEP 1: Start

STEP 2: Get a Signature Object<sup>[2]</sup>

STEP 3: Decode the Base64 encoded “privkey.txt”

STEP 4: Initialize the

Signature Object with

decoded private key

STEP 5: While read

buffer data from input

file  $\neq$  0

Update the data to be signed by each byte read.

STEP 6: Generate the Digital Signature

STEP 7: Write the Base64

encoded digital signature

into 'sig' file STEP 8: End

c) Digital Signature Verification Algorithm: (VerSig)

STEP 1: Start

STEP 2: Import “pubkey.txt”, “sig” and the file to be verified(infile)

STEP 3: Decode the Base64 encoded

public key and obtain key

specification STEP 4: Generate a

public key object from the obtained

key specification

STEP 5: Decode the Base64 encoded digital signature and store it in a byte array

STEP 6: Initialize a Signature object and sign it with the newly generated public key STEP

7: While read buffer data from infile  $\neq 0$

Update the data to be verified by each byte read.

STEP 8: Generate a new digital signature

STEP 9: If imported

signature is equal

to the generated

signature then

Display

'Verification:

True'

else

Display 'Verification: False'

STEP 10: End

d) QRCode Generation Algorithm: (GenQR)

STEP 1: Start

STEP 2: Import the source file(infile)

STEP 3: Call GenSig(infile)

STEP 4: Compress “sig” and infile into “result.zip” file

STEP 5: Create an empty string data

STEP 6: Convert “result.zip” into

Base64 encoded string and store in

data

STEP 7: Input the image format and

resolution of the QR Code to be

generated

STEP 8: Input Error Correction Level

STEP 9: Using zxing<sup>[1]</sup> library method convert

'data' into a BitMatrix object 'bitmatrix' STEP

10: Write bitmatrix to an image

STEP 11: End

**N.B-** BitMatrix represents a 2D matrix of bits.

Encoding: -

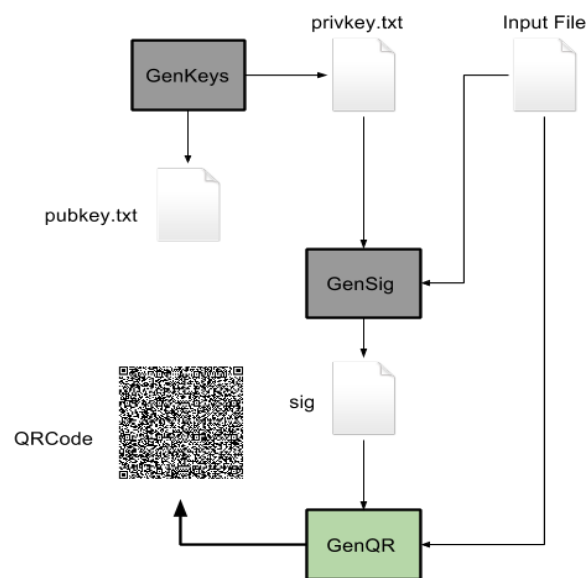


Fig.4.1 encoding



Decoding: -

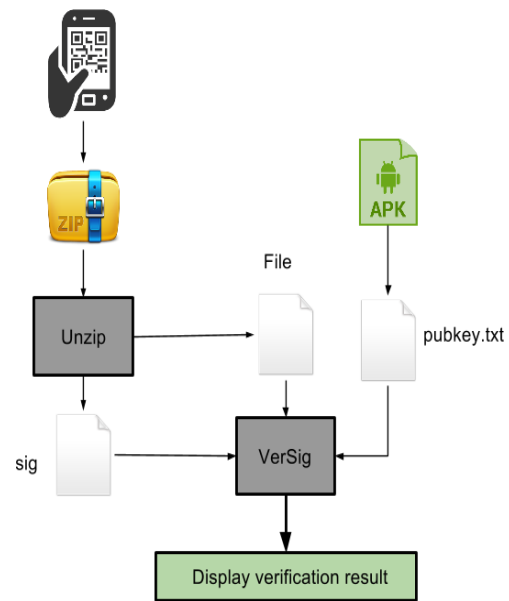
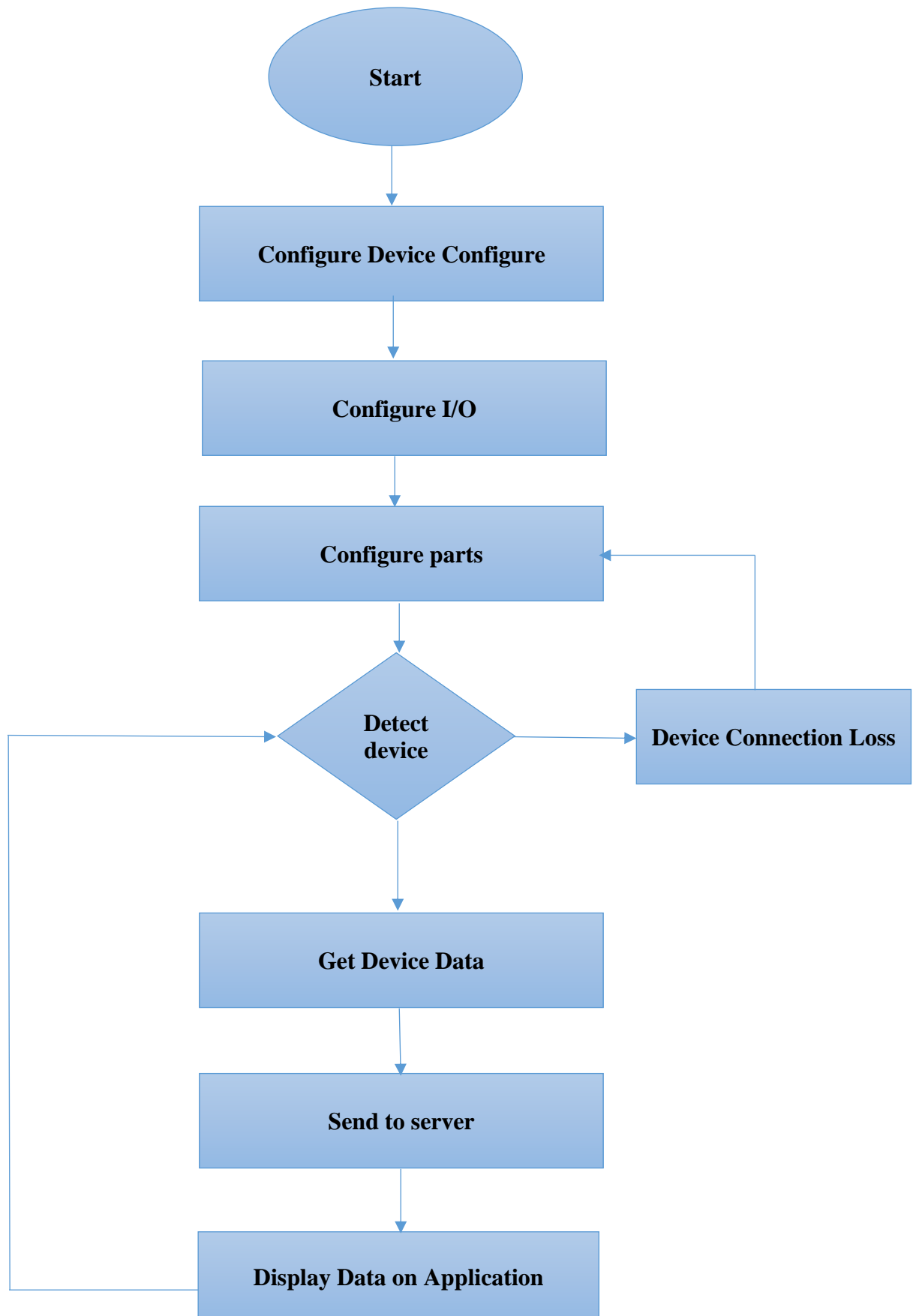


Fig.4.2 decoding

### 5)Module flow chart:



## **7) Advantages:**

- This system is fully automated and it does not require any human interaction except initial registration in software.
- LCD and PC interface both are provided with RFID based attendance system. This gives benefit of viewing attendance on the spot on LCD or remotely from computer.
- This system is accurate and can avoid proxy or information.

## **8) Applications:**

- High security and assurance – This identification provides the answers to “something a person has and is” and helps verify identity.
- User Experience – Convenient and fast.
- Digital Id cards will be used in several areas
- (Industries, schools/colleges, banks, government sectors etc. i.e. the places where people are coming in bulk regularly.)

#### 4)Results:

HARDWARE COMPONENT OF PENDENT:

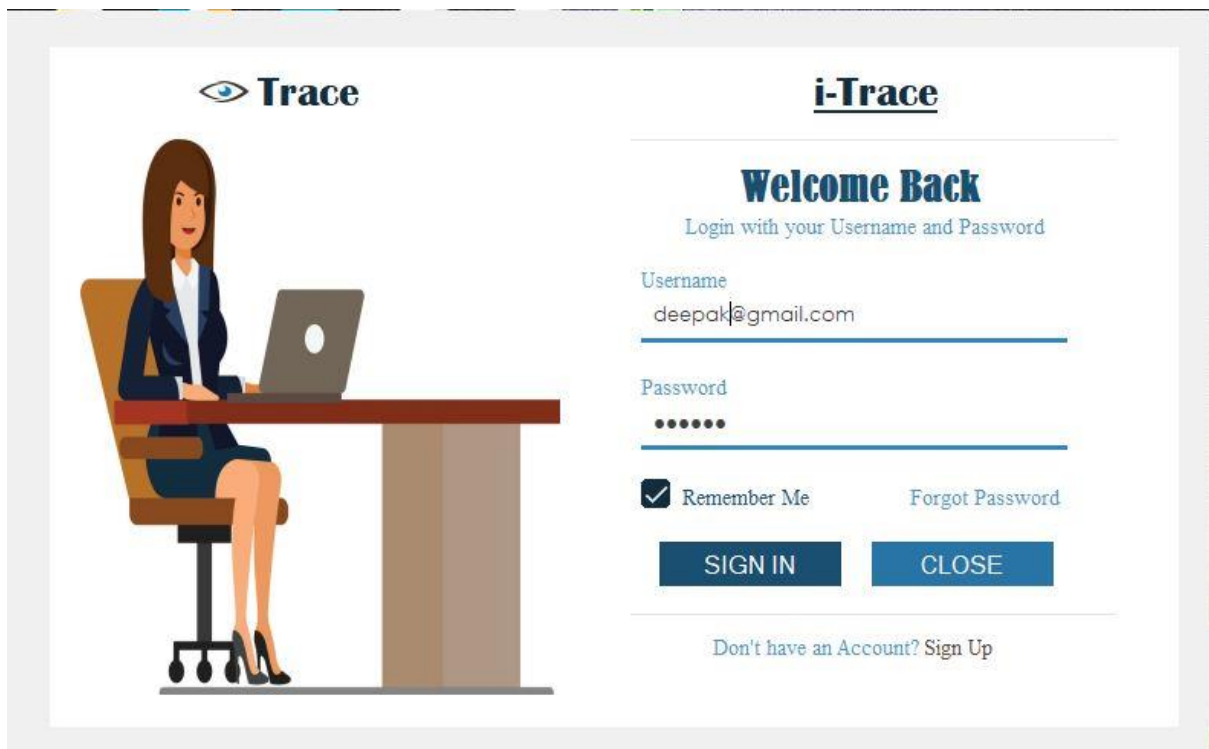


Fig 4.1

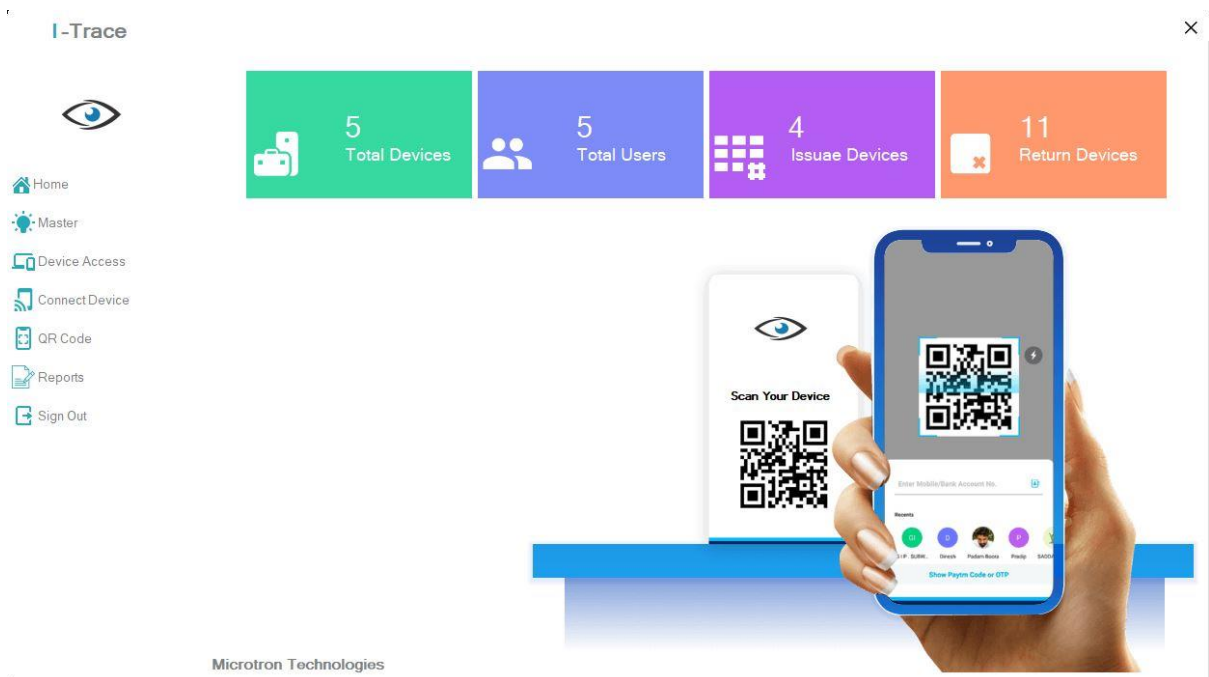


Fig 4.1

## SOFTWARE :



### 4.3Registration page



### 4.4QR code scanning

I-Trace

Home

Master

Device Access

Devices Info

Configure Devices

Get contact List

Clear Device Data

Connect Device

QR Code

Reports

Sign Out

Device Information

Device Information

Device Id

000035

Company Id

LEHON

Distance (Mt)

1.0

Battery Voltage(Vo)

3.8

Signal(dB)

<5 Hz

Get Device

Reset

4.5 Check device information here

I-Trace

Home

Master

Device Access

Connect Device

Connect

Disconnect

Refresh Device

QR Code

Reports

Sign Out

Connect Device

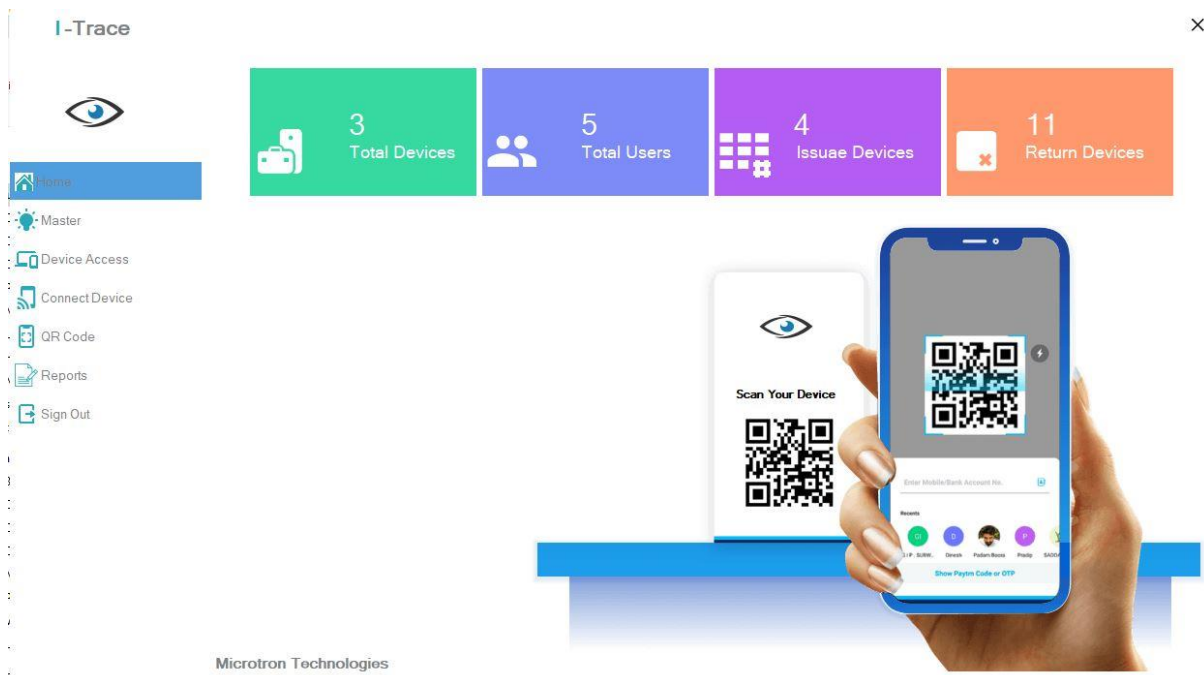
SELECT PORT

COM10

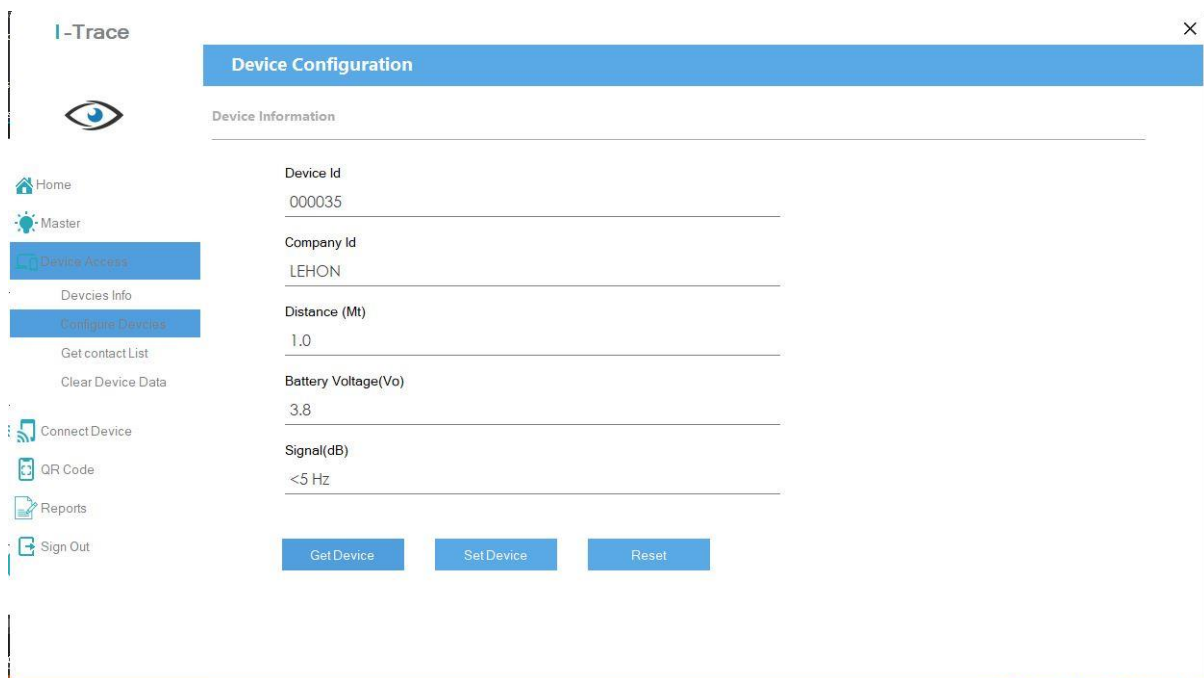
Connect

Disconnect

4.6 connect device with software here



4.7 dashboard for monitoring all details about device and employee



4.8 device configure here you can change device specification like device distance

I-Trace

Home

Master

Register Device

Register User

Issue Device

Return Device

Device Access

Connect Device

QR Code

Reports

Sign Out

Register Devices

Register Device

Registration Id

Registration Id

Device Id

000035

Company Id

LEHON

Distance (Mt)

1.0

Battery Voltage(Vo)

3.7

Signal(dB)

<5 Hz

Get Device

Submit

Reset

Device Data

Search

(Search user data here like Name, Company , Id. Ex # harry, Microsoft , 1001)

Device Id	Company Id	Device Distance	Device Battery	
00000022	00001234	1.0	3.9	2.0
00000016	00001234	1.0	2.7	3.5
000035	LEHON	1.0	3.7	<5

#### 4.9 device get data and submit to database

I-Trace

Home

Master

Register Device

Register User

Issue Device

Return Device

Device Access

Connect Device

QR Code

Reports

Sign Out

Register Issue Device

Select Device and Users

Registered Users

First Name
Rahul
Mayuresh
Vedant
Parag
Sameer

Select Device

000035

Select User

Rahul Badge

Mobile

9096415613

Address

manewada

Issue Status

Active

Issue Device

Reset

Show Issue Device

Close

Search Here

Search

User ID	First Name	Last Name	Full Name	Mobile	Email ID
3	Rahul	Badge	Rahul Badge	9096415613	rahul@gr
4	Mayuresh	Parkhi	Mayuresh Parkhi	8378002707	mayuresh@
5	Vedant	Nimbarate	Vedant Nimbarate	7709092864	vedant@gr
6	Parag	Raut	Parag Raut	9970144804	parag@gr
7	Sameer	Meghe	Sameer Meghe	8378002707	sameer@gr

City	Employee Code	Date
nagpur	emp125	16-08-2020
Nagpur	123456	13-05-2021
Nagpur	54644	13-05-2021
wardha	22123	20-05-2021
Wardha	56423	20-05-2021

#### 4.10 device issue to employee and visitor here



I-Trace

Home

Master

Register Device

Register User

Issue Device

Return Device

Device Access

Connect Device

QR Code

Reports

Sign Out

Register Users

Return Device

Select Device and Users

Device ID

User Name

Mobile

Return Status

Return Device

Reset

Close

Search Here

Search

Device Id	Username	Mobile No
00000027	prachi	9096965842
00000022	Rahul	9096415613
00000022	Mayuresh Parkhi	8378002707
00000022	Mayuresh Parkhi	8378002707
00000026	Parag Raut	9970144804
00000026	Parag Raut	9970144804
00000026	Parag Raut	9970144804
00000026	Rahul Badge	9096415613
00000026	Rahul Badge	9096415613
00000026	Mayuresh Parkhi	8378002707
00000026	Mayuresh Parkhi	8378002707
00000026	Parag Raut	9970144804
00000026	Vedant Nimbarate	7709092864
00000026	Rahul Badge	9096415613
00000022	Sameer Meghe	8378002707

Employee Code	Date
emp125	16-08-2020
123456	13-05-2021
54644	13-05-2021
22123	20-05-2021
56423	20-05-2021

4.11 device return from employee and visitor here

I-Trace

Home

Master

Register Device

Register User

Issue Device

Return Device

Device Access

Connect Device

QR Code

Reports

Sign Out

Register Users

User Registration

Enter Registration Id

Registration Id

Enter First Name

First Name

Enter Last Name

Last Name

Enter Mobile Number

Mobile

Enter Email Id

Email Id

Enter Company Here

Company Name

Enter Address Here

Address

Enter City Here

City

Enter Employee Code

Employee Code

Submit

Edit

Delete

View Data

Clear

4.12 enroll or register new visitor and employee here

I-Trace

Register Issued Device List

Registered Us Search Here  Search

(Search issue device data here like Device Id Ex # 0000012)

Device Id	Username	Mobile No	Date	Time	Issue Device
00000026	Mayuresh Parkhi	8378002707	20-05-2021	12:00 AM	1
00000026	Parag Raut	9970144804	20-05-2021	12:00 AM	1
00000026	Vedant Nimbarate	7709092864	20-05-2021	12:00 AM	1
00000026	Rahul Badge	9096415613	20-05-2021	12:00 AM	1

City	Employee Code	Date
nagpur	emp125	16-08-2020
Nagpur	123456	13-05-2021
Nagpur	54644	13-05-2021
wardha	22123	20-05-2021
Wardha	56423	20-05-2021

4.13 how many device are issued all record will be here

I-Trace

Get Contact List

Contact List

Device Id	Visitor Name	Contact
00000016	Rahul Badge	9096415613

User Details

Device Id  
00000022

Username  
Sameer Meghe

Mobile No  
8378002707

Issue Status  
Returned

Get Contact Get Device Reset Next Back

4.14 how many device contacted with each other all data is here

I-Trace

Home

Master

Register Device

Register User

Issue Device

Return Device

Device Access

Connect Device

QR Code

Reports

Sign Out

Register Users

Registered Users Data

Edit User

Registration Id

3

Enter First Name

Rahul

Enter Last Name

Badge

Enter Username

Rahul Badge

Enter Mobile Number

9096415613

Enter Email Id

rahul@gmail.com

Enter Company

microtron

Enter Address

manewada

Enter City

nagpur

Enter EMP Code

emp125

Update

Exit

Employee Code

Date

emp125	16-08-2020
123456	13-05-2021
54644	13-05-2021
22123	20-05-2021
56423	20-05-2021

4.15 modify employee and visitors data here

I-Trace

Home

Master

Device Access

Connect Device

QR Code

Generate QR code

Scan Device

Refresh Device

Reports

Sign Out

Generate QR Code

Device QR Code

Select Device For QR Code

00000022

Company ID

Distance

Device Status

00001234

1.0 M

Active

Create QR Code

Download QR

Refresh

4.16 QR code generate here for all devices

I-Trace

Home

Master

Register Device

Register Users

Issue Device

Return Device

Device Access

Connect Device

QR Code

Reports

Sign Out

Register Users

Registered Users Data

<

Search

(Search user data here like Name, Company, Id. Ex # harry, Microsoft, 1001)

	First Name	Last Name	Full Name	Mobile	Email	Company	Address	City	Employee Code	Date
▶	Rahul	Badge	Rahul Badge	9096415613	rahul@gmail.com	microtron	manewada	nagpur	emp125	16-08-2020
	Mayuresh	Parkhi	Mayuresh Parkhi	8378002707	mayuresh@gmail...	Microtron	Somalwada	Nagpur	123456	13-05-2021
	Vedant	Nimbarate	Vedant Nimbarate	7709092864	vedant@gmail.com	Microtron	Somalwada	Nagpur	54644	13-05-2021
	Parag	Raut	Parag Raut	9970144804	parag@gmail.com	DMIETR	sai nagar	wardha	22123	20-05-2021
	Sameer	Meghe	Sameer Meghe	8378002707	sameer@gmail.com	DMIETR	Ram Nagar	Wardha	56423	20-05-2021
*										

4.17 show all details of employee and visitors

## **5)Summary and conclusions:**

### **5.1 Future scope:**

1)The future of RFID is growing and expanding as more industries and companies invest in the technology. ... Unlike barcode scanners, RFID readers do not be pointed directly at a tag to get a scan. Instead, employees using RFID can get an accurate scan from several feet away and process dozens of scans in seconds.

2)Size will be in micros comparing to the current pendant.

3)In addition to it Bluetooth sensors will be used in future.

4) In future ,Camera capture images will be used to detect human fatigue in different environment via human gate analysis.

## CHAPTER 6)

### APPENDIX A]

```
Imports MySql.Data.MySqlClient
Public Class loginfrm
    Dim un, ps As String
    Dim msg As String
    Private Sub loginfrm_Load(sender As Object, e As EventArgs) Handles MyBase.Load

        txtpassword1.IsPassword = True

    End Sub

    Private Sub BunifuFlatButton1_Click(sender As Object, e As EventArgs) Handles
        BunifuFlatButton1.Click
        Try

            If My.Computer.Network.IsAvailable Then
                If txtemail.Text <> "" And txtpassword.Text <> "" Then

                    login_data()

                ElseIf txtemail.Text = "" Then

                    MsgBox("Enter Email", MsgBoxStyle.OkCancel + MsgBoxStyle.Question)

                ElseIf txtpassword.Text = "" Then

                    MsgBox("Enter Password", MsgBoxStyle.OkCancel +
MsgBoxStyle.Question)

                Else

                    MsgBox("Enter Email Id and Password", MsgBoxStyle.OkCancel +
MsgBoxStyle.Question)

                End If

            Else

                MsgBox("internet Not Connected, please connect Internet",
MsgBoxStyle.OkCancel + MsgBoxStyle.Critical)

            End If

        Catch ex As Exception

        End Try

    End Sub
```

```

Private Sub BunifuFlatButton2_Click(sender As Object, e As EventArgs) Handles
BunifuFlatButton2.Click
    End

End Sub

Private Sub txtpassword_OnValueChanged(sender As Object, e As EventArgs) Handles
txtpassword1.OnValueChanged

End Sub

Public Sub login_data()

    ' TRUE LOGIC
    Dim a As Integer
    Dim i As Integer
    'Dim un, ps As String
    un = txtemail.Text
    ps = txtpassword.Text
    Dim st As String = ""
    st = 1

    mycon.Open()

    'sql = "Select * from addcompanyuser_table where email =" & un & "'and
password =" & ps & "'"
    sql = "Select * from addcompanyuser_table where email =" & un & "'and
password =" & ps & "'and status=" & st & "'"

    cmd = New MySqlCommand(sql, mycon)
    reader2 = cmd.ExecuteReader()

    While reader2.Read()
        a = 1
        cu_cid = reader2.GetString("cid")
        cu_uid = reader2.GetString("uid")
        cu_un = reader2.GetString("username")
        cu_mobile = reader2.GetString("mobile")
        cu_email = reader2.GetString("email")

        MsgBox("Dear User " & cu_un & " Your Login Success",
MsgBoxStyle.Information)

    End While
    mycon.Close()
    If a = 1 Then
        Dim rst As String

        rst = MsgBox("Login Success.", MsgBoxStyle.Information +
MsgBoxStyle.OkCancel)
        If rst = MsgBoxResult.Ok Then
            Dim obj As New Form1
            obj.Show()
            Me.Hide()

        End If
    Else
        MsgBox("Invalid Email Id or Password Enter", MsgBoxStyle.Critical)
    End If
End Sub

```

```
End If

End Sub
End Class
```

### **Main Form Code**

```
Imports MySql.Data.MySqlClient
Imports System.IO
Imports System.IO.Ports
Public Class Form1
```

```
Dim index As Integer = 0
Dim index1 As Integer = 1
Dim index2 As Integer = 2
Dim index3 As Integer = 3
Dim index4 As Integer = 4
Dim index5 As Integer = 5
Dim index6 As Integer = 6
Dim index7 As Integer = 7
Dim index8 As Integer = 8
Dim index9 As Integer = 9
```

```
Dim table As New DataTable()
```

```
Public na1 As String = ""
```

```
Public Cid As String = ""
Public sn As String = ""
Public dist As String = ""
Public batt As String = ""
Public VoSIGS As String = ""
```

```
' for command
Public gd As String = ""
Public gc As String = ""
Public sd As String = ""
Public cd As String = ""
```

```
Public d1 As String = ""
Public d2 As String = ""
Public t1 As String = ""
Public t2 As String = ""
```

```
'for button command
Public b1 As String = ""
Public b2 As String = ""
Public b3 As String = ""
Public b4 As String = ""
```



```
Public WithEvents com As New IO.Ports.SerialPort
Public s As String = ""
```

```
Private Sub Form1_Load(sender As Object, e As EventArgs) Handles Me.Load
    control_manage()
```

```
    For i As Integer = 0 To My.Computer.Ports.SerialPortNames.Count - 1
        ComboBox1.Items.Add(My.Computer.Ports.SerialPortNames(i).ToString)
```

```
    Next
```

```
    deviceId2.Text = ""
```

```
cards_data()
```

```
End Sub
```

```
Public Sub cards_data()
```

```
    get_total_device()
    lbltotaldevice.Text = total_device
```

```
    get_total_users()
    lbltotaluser.Text = total_user
```

```
    get_total_issue_device()
    lblissuedevice.Text = issue_device
```

```
    get_total_return_device()
    lblreturndevice.Text = return_device
```

```
Private Sub BunifuFlatButton18_Click(sender As Object, e As EventArgs) Handles
    BunifuFlatButton18.Click
```

```
    Try
        com.Close()
        com.Dispose()
```

```
    Catch ex As Exception
        MessageBox.Show(ex.Message)
```

```
End Try
End Sub
```

```
'function
```

```
Public Sub calc(ByVal s As String)
```

```
    ' s = "COMP--00001234SRNO--00000022DIST--1.0MtBATT--4.0VoSIGS--94 dB"
```

```
    Dim i As Integer = s.IndexOf("COMP--")
```

```
    Dim sr As Integer = s.IndexOf("SRNO--")
```

```
    ' MsgBox(i & " " & sr & " " & sr - i)
```

```
    Dim ins As Integer = sr - 1
```

```
    Dim ss() As Char = s.ToArray()
```

```
    Dim d As String = ""
```

```
    For iq As Integer = 0 To ins
```

```
        d = d & ss(iq)
```

```
    Next
```

```
    'MsgBox(d)
```

```
    Cid = d
```

```
    Dim di As Integer = s.IndexOf("DIST--")
```

```
    Dim dissss As String = ""
```

```
    For q As Integer = sr To di - 1
```

```
        dissss = dissss & ss(q)
```

```
    Next
```

```
    'MsgBox(dissss)
```

```
    sn = dissss
```

```
    Dim bi As Integer = s.IndexOf("BATT--")
```

```
    Dim bmm As String = ""
```

```
Dim bssss As String = ""  
For q As Integer = di To bi - 1
```

```
    bmm = bmm & ss(q)  
Next
```

```
'MsgBox(mmm)
```

```
dist = bmm
```

```
Dim bi1 As Integer = s.IndexOf("SIGS--")
```

```
Dim dis1 As String = ""  
Dim bssss1 As String = ""  
For q As Integer = bi To bi1 - 1
```

```
    dis1 = dis1 & ss(q)  
Next
```

```
'MsgBox(mmm)
```

```
batt = dis1
```

```
Dim bat1 As Integer = s.IndexOf("SIGS--")
```

```
Dim mmm As String = ""  
Dim mssss As String = ""  
For q As Integer = bat1 To s.Length - 1  
    mmm = mmm & ss(q)  
Next
```

```
'MsgBox(mmm)
```

```
VoSIGS = mmm
```

```
Dim temp() As String = Cid.Split("--")  
Cid = temp(temp.Length - 1)  
Dim temp1() As String = sn.Split("--")  
sn = temp1(temp1.Length - 1)
```

```
Dim temp2() As String = dist.Split("--")
dist = temp2(temp2.Length - 1)
```

```
Dim temp3() As String = batt.Split("--")
batt = temp3(temp3.Length - 1)
```

```
Dim temp4() As String = VoSIGS.Split("--")
VoSIGS = temp4(temp4.Length - 1)
```

```
' for replace code
VoSIGS = VoSIGS.Replace(":", "")
dist = dist.Replace("Mt", "")
batt = batt.Replace("Vo", "")
```

```
TextBox1.Text = TextBox1.Text & (Cid & " " & sn & " " & dist & " " & batt & " " &
VoSIGS)
Employee Data update
```

```
Imports MySql.Data.MySqlClient
Public Class UserEditfrm
    Private Sub BunifuFlatButton1_Click(sender As Object, e As EventArgs) Handles
BunifuFlatButton1.Click
        ru_id = ""
        Me.Close()
        Dim obj As registeruser = New registeruser()

        obj.Display_Users_List()

        obj.DataGridView1.Refresh()

    End Sub

    Private Sub BunifuFlatButton17_Click(sender As Object, e As EventArgs) Handles
BunifuFlatButton17.Click
        mycon.Close()

        If txtuid.Text <> "" Then

            Try

                Dim com As MySqlCommand = New MySqlCommand("update user_register_table
set
first_name=@1,last_name=@2,username=@3,mobile=@4,email=@5,company_name=@6,address=@7,c
ity=@8,employee_code=@9 where uid=" & Trim(txtuid.Text) & " and cid='" & cu_cid &
"'", mycon)

                com.Parameters.AddWithValue("@1", txtfname.Text)
                com.Parameters.AddWithValue("@2", txtlname.Text)
                com.Parameters.AddWithValue("@3", txtusername.Text)
                com.Parameters.AddWithValue("@4", txtmobile.Text)
                com.Parameters.AddWithValue("@5", txtemail.Text)
```

```

        com.Parameters.AddWithValue("@6", txtcompany.Text)
        com.Parameters.AddWithValue("@7", txtaddress.Text)
        com.Parameters.AddWithValue("@8", txtcity.Text)
        com.Parameters.AddWithValue("@9", txttempcode.Text)

        mycon.Open()
        com.ExecuteNonQuery()

        mycon.Close()

        MsgBox("Record has been updated successfully", MsgBoxStyle.OkCancel +
MsgBoxStyle.Information)

        Catch ex As Exception

        End Try

    Else

        MsgBox("Record Not Updated", MsgBoxStyle.OkCancel + MsgBoxStyle.Critical)
    End If

End Sub

Public Sub get_register_user_details()
    mycon.Close()

    mycon.Open()
    Dim reader As MySqlDataReader
    Try

        Dim query As String
        'query = "select * from user_register_table where first_name='" &
txtiusername.Text & "'"
        'query = "select * from user_register_table where first_name='" &
txtiusername.Text & "'"
        query = "select * from user_register_table where uid='" & ru_id & "'and
cid='" & Trim(cu_cid) & "'"
        cmd = New MySqlCommand(query, mycon)
        reader = cmd.ExecuteReader
        While reader.Read
            Dim fn, ln, un, email, addr, ct, mb, comp, ecode As String
            fn = reader.GetString("first_name")
            ln = reader.GetString("last_name")
            un = reader.GetString("username")
            email = reader.GetString("email")
            mb = reader.GetString("mobile")
            comp = reader.GetString("company_name")
            addr = reader.GetString("address")
            ct = reader.GetString("city")
            ecode = reader.GetString("employee_code")
            txtuid.Text = ru_id

            txtfname.Text = fn
            txtlname.Text = ln

```

```

        txtusername.Text = un
        txtemail.Text = email
        txtmobile.Text = mb
        txtcompany.Text = comp
        txtaddress.Text = addr
        txtcity.Text = ct
        txttempcode.Text = ecode

    End While

    Catch ex As Exception
        MessageBox.Show(ex.Message)

    Finally
        mycon.Dispose()

    End Try

    mycon.Close()
End Sub

Private Sub UserEditfrm_Load(sender As Object, e As EventArgs) Handles Me.Load
    get_register_user_details()
End Sub

Private Sub Panel1_Paint(sender As Object, e As PaintEventArgs) Handles
Panel1.Paint

    End Sub
End Class

```

## Device issue Code

```

Imports MySql.Data.MySqlClient
Public Class issuedevicefrm
    Dim istatus As String = ""
    Dim uid As String = ""
    Private Sub BunifuFlatButton34_Click(sender As Object, e As EventArgs) Handles
BunifuFlatButton34.Click

        ' TRUE LOGIC
        Dim a, rid As Integer
        Dim i As Integer
        Dim did, c_id, un, u_id As String
        Dim dt1 As Date
        Dim dt, tm As String
        un = cu_un
        c_id = cu_cid
        u_id = cu_uid

```

```

Dim format As String = "dd/MM/yyyy"

dt = Now.ToString(format)
tm = dt1.ToShortTimeString

If txtiissue_status.SelectedText = "Active" Then

    istatus = "1"

ElseIf txtiissue_status.SelectedText = "Deactive" Then

    istatus = "0"

End If

' dels is delete status, (1 is delete, 0 is not delete)
' devs is device status,(1 is active device, 0 is deactive device)
'un = "gaurang" ' un is username who is login and register devices
' c_id is company id whose company use this software, (ex: 1 is company id, 2 is
company id)

' dt = dt1.ToShortDateString


mycon.Open()
Dim reader3 As MySqlDataReader
Dim sql1 As String
Dim cmd1 As MySqlCommand
' 1st command
sql = "Select * from issue_device_table where device_id='" & txtdevice_id.Text & "'
and user_id='" & uid & "'and issue_status='" & istatus & "'and company_id='" & c_id & "'"
'sql = "Select * from addcompanyuser_table where username='" &
txtCU_username.Text & "' and uid='" & uid & "' and issue_status='" & istatus & "'"
cmd = New MySqlCommand(sql, mycon)
reader2 = cmd.ExecuteReader()
Device Issue List Code
Imports MySql.Data.MySqlClient
Public Class issuedeviceList
    Private Sub issuedeviceList_Load(sender As Object, e As EventArgs) Handles
MyBase.Load
        Display_issue_device_List()

End Sub

Public Sub Display_issue_device_List()

    Dim I_status As String = "1"

    Try

```

```

mycon.Open()

Dim dt As New DataTable("issue_device_table")
Dim rs As New MySqlDataAdapter("select `device_id`, `username`,
`mobile_no`, `date`, `time`, `issue_status` from issue_device_table where
issue_status = " & Trim(I_status) & " And company_id='" & cu_cid & "'", mycon)
' Dim rs As New MySqlDataAdapter("select
Officer_Id,First_Name,Middle_Name,Last_Name,Gender,Birth_Date,Address1,Address2,City,S
tate,Area,Email,Moblie ,Designation,Aadhar_No,Date1 from tblofficerregistration ",
mycon)

'Dim rs As New MySqlDataAdapter("select `device_id`, `username`,
`mobile_no`, `date`, `time` from issue_device_table where company_id='" & cu_cid &
"'", mycon)
rs.Fill(dt)
DataGridView1.DataSource = dt
DataGridView1.Refresh()
rs.Dispose()
mycon.Close()

DataGridView1.Columns("device_id").HeaderText = "Device Id"
DataGridView1.Columns("username").HeaderText = "Username"
DataGridView1.Columns("mobile_no").HeaderText = "Mobile No"
DataGridView1.Columns("date").HeaderText = "Date"
DataGridView1.Columns("time").HeaderText = "Time"
DataGridView1.Columns("issue_status").HeaderText = "Issue Device"

Catch ex As Exception

End Try

End Sub

Private Sub Label2_Click(sender As Object, e As EventArgs) Handles Label2.Click
Me.Close()

End Sub

Private Sub Label3_Click(sender As Object, e As EventArgs) Handles Label3.Click

End Sub

Private Sub BunifuFlatButton20_Click(sender As Object, e As EventArgs) Handles
BunifuFlatButton20.Click

mycon.Close()

Try
mycon.Open()

Dim dt As New DataTable("issue_device_table")
' Dim rs As New MySqlDataAdapter("select
Officer_Id,First_Name,Middle_Name,Last_Name,Gender,Birth_Date,Address1,Address2,City,S
tate,Area,Email,Moblie ,Designation,Aadhar_No,Date1 from tblofficerregistration ",
mycon)

'Dim rs As New MySqlDataAdapter("Select `device_id`, `username`,
`mobile_no`, `issue_status`, `date`, `time` From issue_device_table Where device_id="
& Trim(txtsearch.Text) & " and company_id='" & cu_cid & "'", mycon)
Dim rs As New MySqlDataAdapter("select `device_id`, `username`,
`mobile_no`, `date`, `time` From issue_device_table Where issue_status='1' and

```



```

device_id like '%" & Trim(txtsearch.Text) & "%' and company_id='" & cu_cid & "'",
mycon)
    rs.Fill(dt)
    DataGridView1.DataSource = dt
    DataGridView1.Refresh()
    rs.Dispose()
    mycon.Close()

Catch ex As Exception

    MessageBox.Show(ex.Message)

End Try

End Sub

Private Sub txtsearch_TextChanged(sender As Object, e As EventArgs) Handles
txtsearch.TextChanged

End Sub

Private Sub txtsearch_KeyUp(sender As Object, e As KeyEventArgs) Handles
txtsearch.KeyUp
    If txtsearch.Text = "" Then
        Display_issue_device_List()
    End If

End Sub

Private Sub txtsearch_KeyPress(sender As Object, e As KeyPressEventArgs) Handles
txtsearch.KeyPress
    If e.KeyChar = Microsoft.VisualBasic.ChrW(Keys.Enter) Then

        Try
            mycon.Open()

            Dim dt As New DataTable("issue_device_table")
            ' Dim rs As New MySqlDataAdapter("select
Officer_Id,First_Name,Middle_Name,Last_Name,Gender,Birth_Date,Address1,Address2,City,S
tate,Area,Email,Mobile ,Designation,Aadhar_No,Date1 from tblofficerregistration ",
mycon)
            'Dim rs As New MySqlDataAdapter("Select `device_id`, `username`,
`mobile_no`, `issue_status`, `date`, `time` From issue_device_table Where device_id="
& Trim(txtsearch.Text) & " and company_id='" & cu_cid & "'", mycon)
            Dim rs As New MySqlDataAdapter("select `device_id`, `username`,
`mobile_no`, `date`, `time` From issue_device_table Where issue_status='1' and
device_id like '%" & Trim(txtsearch.Text) & "%' and company_id='" & cu_cid & "'",
mycon)
            rs.Fill(dt)
            DataGridView1.DataSource = dt
            DataGridView1.Refresh()
            rs.Dispose()
            mycon.Close()

Catch ex As Exception

    MessageBox.Show(ex.Message)

End Try

```

```

        End If
    End Sub
End Class

```

### Device Return code

```

Imports MySql.Data.MySqlClient
Public Class returnDevice

```

```

    ' R-Status is the variable of return status(0 is return, 1 is issue device)
    Dim R_status As String = ""
    Public Sub Display_issue_device_List()

        mycon.Open()

        Dim dt As New DataTable("issue_device_table")
        ' Dim rs As New MySqlDataAdapter("select
Officer_Id,First_Name,Middle_Name,Last_Name,Gender,Birth_Date,Address1,Address2,City,S
tate,Area,Email,Moblie ,Designation,Aadhar_No,Date1 from tblofficerregistration ",
mycon)
        Dim rs As New MySqlDataAdapter("select `device_id`, `username`, `mobile_no`,
`issue_status`, `date`, `time` from issue_device_table where company_id='" & cu_cid &
"'", mycon)
        rs.Fill(dt)
        DataGridView1.DataSource = dt
        DataGridView1.Refresh()
        rs.Dispose()
        mycon.Close()

        DataGridView1.Columns("device_id").HeaderText = "Device Id"
        DataGridView1.Columns("username").HeaderText = "Username"
        DataGridView1.Columns("mobile_no").HeaderText = "Mobile No"
        DataGridView1.Columns("issue_status").HeaderText = "Return Status"
        DataGridView1.Columns("date").HeaderText = "Date"
        DataGridView1.Columns("time").HeaderText = "Time"

```

```

    End Sub

```

```

    Private Sub Label2_Click(sender As Object, e As EventArgs) Handles Label2.Click
        Me.Close()
        txtRdeviceid.Text = ""
        txtRissue_status.Text = "Select Return Status"
        txtRmobile.Text = ""
        txtRusername.Text = ""
        txtRdeviceid.Focus()

```

```

    End Sub

```

```

    Private Sub Label2_MouseHover(sender As Object, e As EventArgs) Handles
Label2.MouseHover
        Label2.BackColor = Color.Red

```

```

    End Sub

```

```

    Private Sub Label2_MouseLeave(sender As Object, e As EventArgs) Handles
Label2.MouseLeave
        Label2.BackColor = Color.Transparent
    End Sub

```

```

    Private Sub BunifuFlatButton3_Click(sender As Object, e As EventArgs) Handles
BunifuFlatButton3.Click

```

```

        'issue_status='1'
        mycon.Close()

    Try
        mycon.Open()

        Dim dt As New DataTable("issue_device_table")
        ' Dim rs As New MySqlDataAdapter("select
Officer_Id,First_Name,Middle_Name,Last_Name,Gender,Birth_Date,Address1,Address2,City,S
tate,Area,Email,Moblie ,Designation,Aadhar_No,Date1 from tblofficerregistration ",
mycon)

        'Dim rs As New MySqlDataAdapter("Select `device_id`, `username`,
`mobile_no`, `issue_status`, `date`, `time` From issue_device_table Where device_id="
& Trim(txtsearch.Text) & " and company_id='" & cu_cid & "'", mycon)
        Dim rs As New MySqlDataAdapter("select `device_id`, `username`,
`mobile_no`, `issue_status`, `date`, `time` From issue_device_table Where device_id="
& Trim(txtsearch.Text) & " and company_id='" & cu_cid & "'", mycon)
        rs.Fill(dt)
        DataGridView1.DataSource = dt
        DataGridView1.Refresh()
        rs.Dispose()

    Catch ex As Exception

        MessageBox.Show(ex.Message)

    End Try

    mycon.Close()
End Sub

Private Sub returnDevice_Load(sender As Object, e As EventArgs) Handles Me.Load
    Display_issue_device_List()

    datagrid()

End Sub

Private Sub DataGridView1_CellContentClick(sender As Object, e As
DataGridViewCellEventArgs) Handles DataGridView1.CellContentClick
    Try

        txtRdeviceid.Text = DataGridView1.Item(0, e.RowIndex).Value
        txtRusername.Text = DataGridView1.Item(1, e.RowIndex).Value
        txtRmobile.Text = DataGridView1.Item(2, e.RowIndex).Value
        txtRissue_status.Text = DataGridView1.Item(4, e.RowIndex).Value
        txtRpri.Text = DataGridView1.Item(5, e.RowIndex).Value
        txtqty.Text = DataGridView1.Item(6, e.RowIndex).Value
        txtunit.Text = DataGridView1.Item(7, e.RowIndex).Value
        txtgst.Text = DataGridView1.Item(8, e.RowIndex).Value
        txtfinalamt.Text = DataGridView1.Item(9, e.RowIndex).Value
        txtdesc.Text = DataGridView1.Item(11, e.RowIndex).Value

    Catch ex As Exception

    End Try
End Sub

```

```

Private Sub BunifuFlatButton34_Click(sender As Object, e As EventArgs) Handles
BunifuFlatButton34.Click
    Try
        ' deactivate means return device and active means issue device
        If txtRissue_status.Text = "Active" Then

            R_status = "1"

        ElseIf txtRissue_status.Text = "Deactive"

            R_status = "0"

        End If

        If txtRdeviceid.Text <> "" And R_status <> "" And R_status = "0" Then
            Dim com As MySqlCommand = New MySqlCommand("update issue_device_table
set issue_status=@1 where device_id=" & Trim(txtRdeviceid.Text) & " and
company_id='" & cu_cid & "'", mycon)

            com.Parameters.AddWithValue("@1", R_status)

            mycon.Open()
            com.ExecuteNonQuery()

            mycon.Close()

            MsgBox("Device Is Returned", MsgBoxStyle.Information +
MsgBoxStyle.OkCancel)
            Display_issue_device_List()

        Else
            If txtRissue_status.Text = "Active" And R_status = "1" Then

                MsgBox("Device Already Issued", MsgBoxStyle.Critical +
MsgBoxStyle.OkCancel)

            Else
                MsgBox("Please Select Device ID for return device",
MsgBoxStyle.Critical + MsgBoxStyle.OkCancel)

            End If

        End If

    End Try

End Sub

Public Sub datagrid()
    'catagory

```

```

'Dim columnwidth1 As DataGridViewColumn = DataGridView1.Columns(1)
'columnwidth1.Width = 500

'Return device form

DataGridView1.DefaultCellStyle.Font = New Font("Tahoma", 10)
DataGridView1.ColumnHeadersDefaultCellStyle.Font = New Font("Tahoma", 10,
FontStyle.Bold)

Dim columnwidth1 As DataGridViewColumn = DataGridView1.Columns(0)
columnwidth1.Width = 100

Dim columnwidth2 As DataGridViewColumn = DataGridView1.Columns(1)
columnwidth2.Width = 200

Dim columnwidth3 As DataGridViewColumn = DataGridView1.Columns(2)
columnwidth3.Width = 120

Dim columnwidth4 As DataGridViewColumn = DataGridView1.Columns(3)
columnwidth4.Width = 120

Dim columnwidth5 As DataGridViewColumn = DataGridView1.Columns(4)
columnwidth5.Width = 100

Dim columnwidth6 As DataGridViewColumn = DataGridView1.Columns(4)
columnwidth6.Width = 100

End Sub

Private Sub txtsearch_OnValueChanged(sender As Object, e As EventArgs) Handles
txtsearch.OnValueChanged

End Sub

Private Sub txtsearch_KeyUp(sender As Object, e As KeyEventArgs) Handles
txtsearch.KeyUp
    If txtsearch.Text.ToString = "" Then

        Display_issue_device_List()

    End If

End Sub

End Sub

Private Sub txtsearch_KeyPress(sender As Object, e As KeyPressEventArgs) Handles
txtsearch.KeyPress
    If e.KeyChar = Microsoft.VisualBasic.ChrW(Keys.Enter) Then
        Try
            mycon.Open()

            Dim dt As New DataTable("issue_device_table")
            'Dim rs As New MySqlDataAdapter("Select `device_id`, `username`,
`mobile_no`, `issue_status`, `date`, `time` From issue_device_table Where device_id="
& Trim(txtsearch.Text) & " and company_id='" & cu_cid & "'", mycon)

```

```

        Dim rs As New MySqlDataAdapter("select `device_id`, `username`,
`mobile_no`, `issue_status`, `date`, `time` From issue_device_table Where device_id="
& Trim(txtsearch.Text) & " and company_id='" & cu_cid & "'", mycon)
        rs.Fill(dt)
        DataGridView1.DataSource = dt
        DataGridView1.Refresh()
        rs.Dispose()

```

#### Device Search Code

```
Imports MySql.Data.MySqlClient
```

```
Public Class searchDevice
```

```
    Private Sub searchDevice_Load(sender As Object, e As EventArgs) Handles
```

```
MyBase.Load
```

```
        Display_device_List()
```

```
        'datagrid_setting()
```

```
End Sub
```

```
,
```

```
Public Sub Display_device_List()
```

```
    mycon.Open()
```

```
    Dim dt As New DataTable("device_table")
```

```
    ' Dim rs As New MySqlDataAdapter("select
Officer_Id,First_Name,Middle_Name,Last_Name,Gender,Birth_Date,Address1,Address2,City,S
tate,Area,Email,Moblie ,Designation,Aadhar_No,Date1 from tblofficerregistration ",
mycon)
```

```
    Dim rs As New MySqlDataAdapter("select `device_id`, `company_id`, `device_
distance`, `device_battery`, `device_signal`, `device_status`, `date`, `time` From
device_table where c_id='" & cu_cid & "'", mycon)
```

```
    rs.Fill(dt)
```

```
    DataGridView1.DataSource = dt
```

```
    DataGridView1.Refresh()
```

```
    rs.Dispose()
```

```
    mycon.Close()
```

```
    'DataGridView1.Columns("id").DisplayIndex = 0
```

```
    DataGridView1.Columns("device_id").HeaderText = "Device Id"
```

```
    DataGridView1.Columns("company_id").HeaderText = "Company Id"
```

```
    DataGridView1.Columns("device_ distance").HeaderText = "Device Distance"
```

```
    DataGridView1.Columns("device_battery").HeaderText = "Device Battery"
```

```
    DataGridView1.Columns("device_signal").HeaderText = "Device Signal"
```

```
    DataGridView1.Columns("device_status").HeaderText = "Device Status"
```

```
    DataGridView1.Columns("date").HeaderText = "Date"
```

```
    DataGridView1.Columns("time").HeaderText = "Time"
```

```
End Sub
```

```
    Private Sub BunifuFlatButton20_Click(sender As Object, e As EventArgs) Handles
BunifuFlatButton20.Click
```

```
        mycon.Open()
```

```
        Try
```

```
Dim dt As New DataTable("device_table")
' Dim rs As New MySqlDataAdapter("select
Officer_Id,First_Name,Middle_Name,Last_Name,Gender,Birth_Date,Address1,Address2,City,S
tate,Area,Email,Moblie ,Designation,Aadhar_No,Date1 from tblofficerregistration ",
mycon)
Dim rs As New MySqlDataAdapter("Select `device_id`, `company_id`, `device_
distance`, `device_battery`, `device_signal`, `device_status`, `date`, `time` From
device_table Where device_id like '%" & Trim(txtsearch.Text) & "%' and c_id='" &
cu_cid & "'", mycon)

rs.Fill(dt)
DataGridView1.DataSource = dt
DataGridView1.Refresh()
rs.Dispose()
```

## Appendix B]

### PROJECT GUIDE



Dr. Rajendra Rewatkar obtained the B. E. Degree in Electronics Engineering from R.T.M.N.U University. He received the M-tech degree in Electronics Engineering. He is currently working as HOD of electronics as well as electrical engineering in Datta Meghe Institute of Engineering, Technology & Research, Salod. His research interest includes-Embedded systems, Wireless communication, Satellite communication, VLSI Fabrication Technology and optical communication.

### PROJECT MEMBERS:

A portrait of Mr. Deepak A. Pashine, a man with dark hair and a beard, wearing a light blue shirt, against a patterned background.	<p>Mr. Deepak A. Pashine is currently pursuing B.E final year in Electronics Branch affiliated to Nagpur University. His major interest in Python programming and IOT, Radio frequency design and Mobile communication.</p> <p>Email Id:- deepakpashine2012@gmail.com Mob No.:- 9158285679.</p>
A portrait of Mr. Dhiraj A. Thakre, a man with dark hair and a beard, wearing a dark blue shirt, against a blue background.	<p>Mr. Dhiraj A. Thakre is currently pursuing B.E in Electronics Engineering, Sawangi affiliated to Nagpur University. His major interest in Radio frequency design and Mobile communication.</p> <p>Email Id:- dhirajthakre044@gmail.com Mob No.:- 9130623531</p>





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