CHAPTER 1: INTRODUCTION

1. INTRODUCTION

Meditreat provides a smart hospital management solution for the convenience of users. It consists of modules such as live ambulance tracking, where the ambulance is tracked live on google maps. Ambulance reporting, in which the ambulance staff sends patients data through mobile application in case of emergencies. Emergency screen in hospitals consists of the patient's data send by the ambulance. ICU management gives alert for patient's medicines and food intake.

1.1. Project Scope:

- Meditreat provides a solution wherein a patient's data can be easily managed. There are various modules as follows:

- Ambulance Module: In this module, when the ambulance picks a patient, the ambulance staff send the patients current situation details to hospital by filling a patient detail form through meditreat mobile application.

- Ambulance Live Tracking: In this module, the ambulance is tracked live through google maps from the source where the patient is been picked to the way to hospital where the patient is to be dropped. This helps the hospital security to clear the traffic near the hospital as well as the hospital staff to keep the prerequisites ready for the patient in case of emergencies.

- Live camera: In this module, during the case of emergency where the patient needs immediate treatment in the ambulance, the ambulance staff can use the mobile camera for video calling to the hospital doctor and the doctor can be able to see the patient trough meditreat software monitor screen.

- Hospital emergency screen: In this module, the patient data filled by the ambulance is been send to the hospital's emergency screen which constantly keeps beeping until the staff checks it.

- ICU management: This module helps the hospital staff as well as the patient to easily manage the patients schedule of medicines as well as food intake.

1.2. Objective:

- This project consists of delivering a smart solution using mobile application for the ease of hospital, doctors, patients, hospital staff.

- The project will be completed by April 2019.

- This project will feature following modules such as Ambulance live tracking, Live camera, ICU management, Ambulance module, Hospital emergency screen.

1.3.   Technologies:

Software Requirement:

- Visual Studio
  Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs, as well as websites, web apps, web services and mobile apps. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows   Store and Microsoft Silverlight. It can produce both native code and managed code. (Microsoft, 2014)

- Android Studio
  Android Studio is an IDE used to build mobile applications. It is written in java and can be downloaded on Windows, macOS and Linux based operating systems. (Studio, 2019)

- Navicat
  Navicat is a database development and management software used for projects. It is used for MySQL, SQL lite, SQL server. (Navicat, 2018)

Hardware Requirement:

- Laptop with Windows 10 OS
- Smart Android Mobile

CHAPTER 2: REQUIREMENT ANALYSIS

2. REQUIREMENT ANALYSIS

2.1. Existing Solution:

2.1.1. HospiLogix:

HospiLogix is a web-based hospital management solution which consists of various modules for the ease of hospital management. The customers of HospiLogix include Medanta, Metro group of hospital, primus group of hospital and many more. It provides support seven days of the week for the critical issues. (eSolutions, 2016)

Advantages of Existing System:

- Billing software for OPD and LPD
- Patient Registration
- Enquiry Management
- O.T. Scheduling
- HR and payroll management
- Equipment maintenance
- Ambulance management

Disadvantages of Existing System:

- Live Ambulance Tracking
- Hospital Emergency Screen
- Live camera module

2.2. Target Users

- Hospitals
- Hospital Staff
- Patients
- Local Users

CHAPTER 3: FEASIBILITY ANALYSIS

3. FEASIBILITY ANALYSIS

3.1.   Technical feasibility:

Here we have used tools that are required for developing the project have been selected on the basis of their flexibility, reliability, simplicity, scalability and robustness.

Android Studio: Android Studio is an IDE used to build mobile applications. It is written in java and can be downloaded on Windows, macOS and Linux based operating systems

Visual Studio 2017: It is an IDE provided by Microsoft to develop websites and software's.

Navicat: This tool is used to create database tables and store database values.

3.2.   Time schedule feasibility:

Here we have made proper planning of our project so that it can be completed on time.

- We daily complete the task and then at last we have a discussion with the project guide about the module developed
- Time to time generation of reports for proper documentation.
- Updating the task sheet daily.

3.3.   Operational feasibility:

This project is developed to easily manage ambulance, hospital, patients as well as hospital staff.

Meditreat software as well mobile application is very convenient and easy to use for everyone.

The software needs to be installed in hospital through which the hospital data can be easily managed. The mobile application is also needed to be installed by staff members for their convenience.

3.4.   Implementation feasibility:

Database Details:

1) Patient Master:

PatientID	PatientName	Mobile	Email	Gender	Address	DOB	BloodGroup
2	Test	9999999	test	Male	Test	test	A+

2) Intake Master:

IntakeID	IntakeName	Status	CreatedDateTime
1	Crocin	A	02/02/2019
2	Mbison-SL	A	02/02/2019
3	Rockbon	A	02/02/2019
4	Fruit Juice	A	02/02/2019
5	Vegetable Soup	A	02/02/2019
6	Dr.Appointment	A	02/02/2019

3) Hospital Master:

HospitalID	HospitalName	HospitalAddress	HospitalContactPerson	HospitalEmailID	HospitalContactNumber	Status	CreatedDateTime
6	Zydus Thaltej	Zydus Hospitals Road	Manish Kumar Rai	info@zydushospitals.co	9152102448	A	2019-02-21 12:18:40 PM
7	CIMS ScienceCity	Care Institute Of Med	Ashok Patel	info@cims.org	9152901413	A	2019-02-21 12:21:40 PM
8	KD Ahmedabad	K D Hospital, SG Road	Parth Desai	info@kd.com	9152710047	A	2019-02-21 12:22:39 PM
9	HCG ScienceCity	Sola Science City Roa	Admin	info@hcg.com	9099712345	A	2019-02-21 12:23:34 PM
10	Sanjivani Vastrapur	1, Uday Park Society, '	Admin	vgb.sanjivani@gmail.co	9825007385	A	2019-02-21 12:24:35 PM
11	Civil Ahmedabad	Asarwa, Ahmedabad ·	Admin	ms.health.ahmedabad.c	079-22683722	A	2019-02-21 12:25:30 PM
12	Sola Civil	Civil Surgeon S Bung	Admin	msgermssola@gmail.co	7927663735	A	2019-02-21 12:26:05 PM
13	Vadilal Ahmedabad	Paldi Road, Ellis Bridg	Admin	info@vadilal.com	079-26577625	A	2019-02-21 12:26:54 PM
14	Sparsh Ahmedabad	100/B, Swastik Society	Admin	enquiry@sparshhospital	079-26461444	A	2019-02-21 12:27:29 PM
15	Sal Ahmedabad	Drive In Road, Ahmed	Admin	info@salhospital.com	079-66115619	A	2019-02-21 12:27:59 PM
16	MayFlower Women	Mayflower House, Dri	Admin	contact@mayflowerhos	9152229984	A	2019-02-21 12:28:50 PM
17	Arihant Orthopedic	Chandlodiya Road, Cl	Admin	info@arihant.com	079-27605620	A	2019-02-21 12:30:02 PM
18	Apollo Ahmedabad	1, Tulsi Baug Society,	Admin	info@apollo.com	079-66701880	A	2019-02-21 12:31:34 PM

4) Designation Master:

DesignationID	Designation	HospitalName	Status	CreatedDateTime
1	Ambulance	Zydus Thaltej	A	2019-02-21 01:04:11
2	Doctor	Zydus Thaltej	A	2019-02-21 01:04:33
3	ICU Nurse	Zydus Thaltej	A	2019-02-21 02:11:37

5) APatient:

| APatientID	HospitalName	PatientName	PatientAge	Gender	BloodGroup	Disease	Description	Symptoms	ExpectedArrivalTime
54	Zydus Thaltej	test	12	Male	A+	Test	test	BP,	12:30
55	Zydus Thaltej	test	12	Male	B-	Test	test	Diabetes, Thyroi	12:30
51	Zydus Thaltej	test	12	Male	B-	Tet	tes	BP, Pregnancy,	12:55
52	Zydus Thaltej	test	12	Make	b	tes	tes	BP	12:22
53	Zydus Thaltej	test	25	Male	AB+	Cancer	fever	BP, Breathing Pr	12:30

3.5. Economic feasibility:

In this project there are several economic benefits as the tools and technologies used for developing this project have mostly nominal rates.

- We are going to use Visual Studio which is available freely for the community version.
- Navicat which is freely available for the database.
- Android Studio which is freely available.

CHAPTER 4: PROJECT PLAN

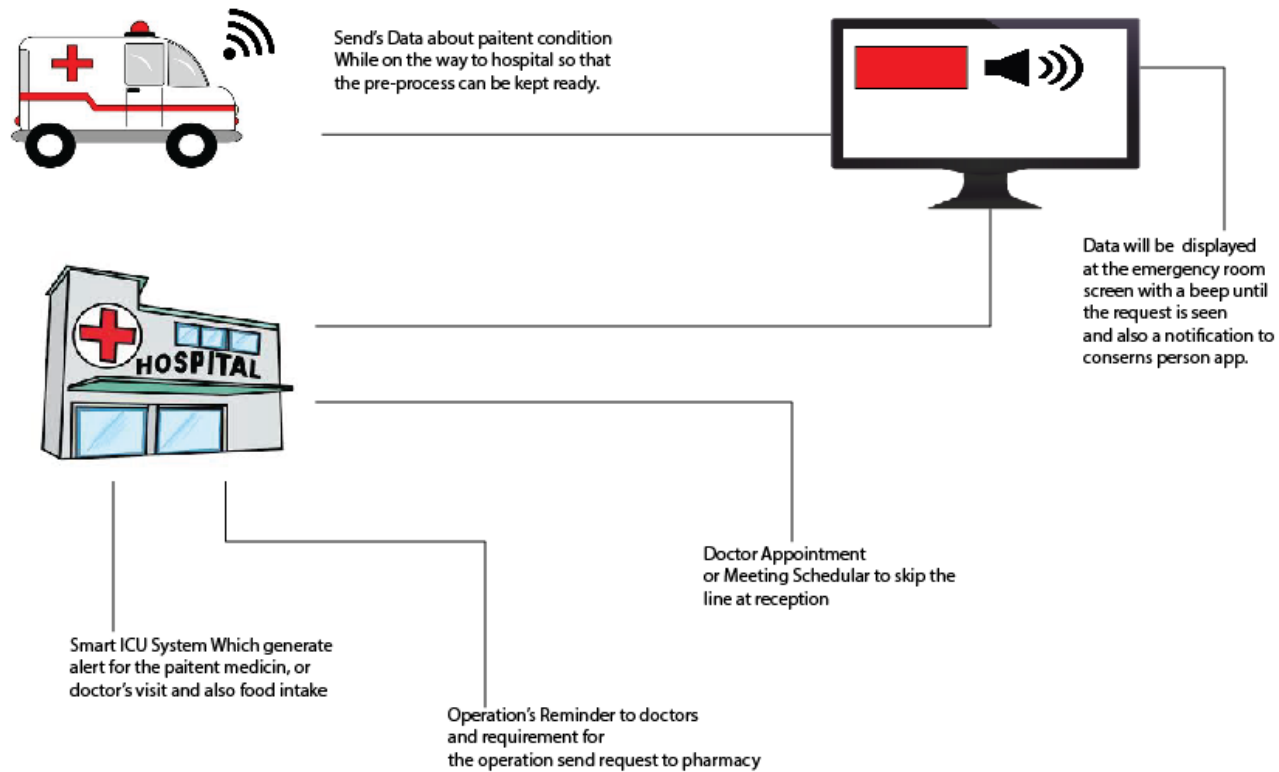# 4. PROJECT PLAN

4.1.   Gantt Chart:
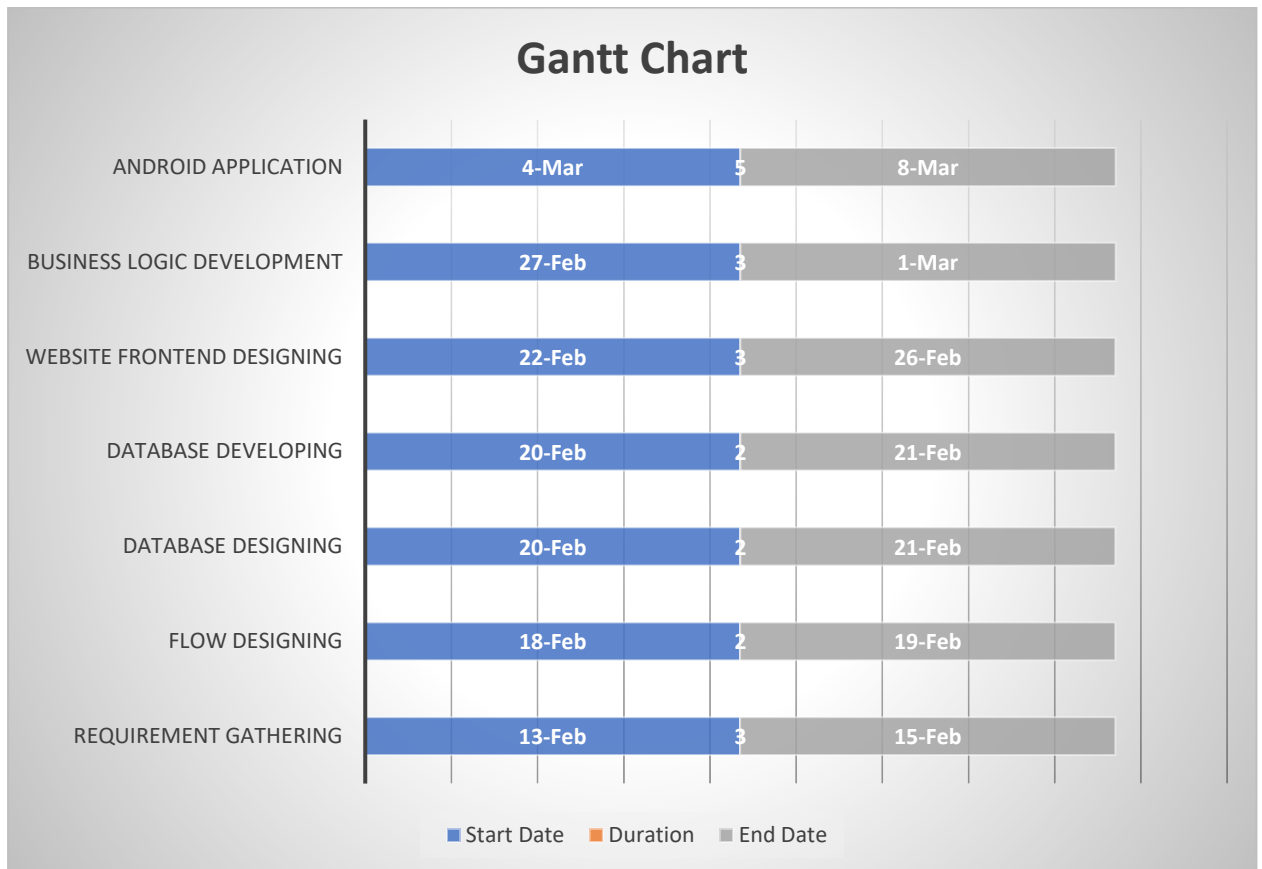
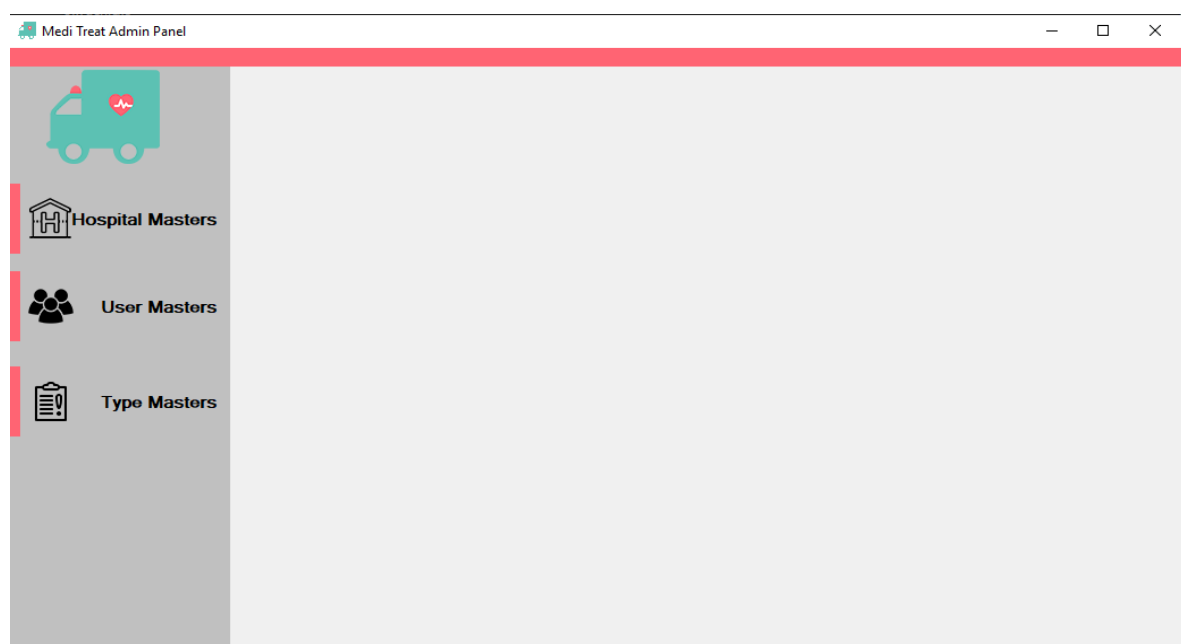# CHAPTER 5: DESIGN AND DEVELOPMENT

5. DESIGN AND DEVELOPMENT

5.1. Initial Design:
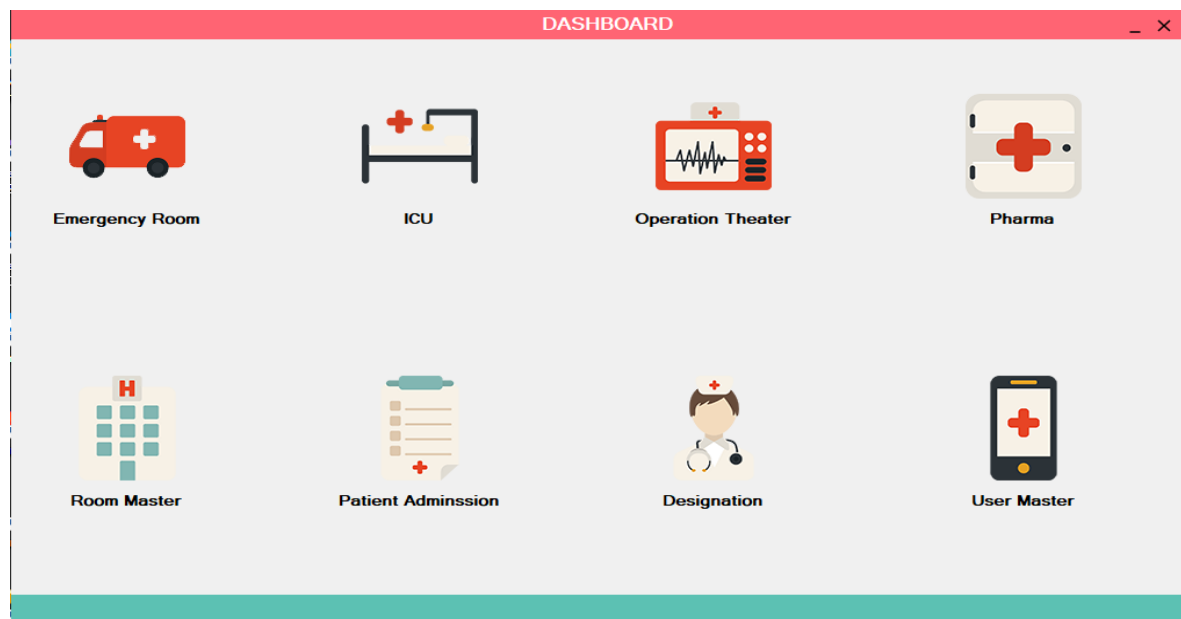### 5.1.1. Initial Application Data Flow Diagram:

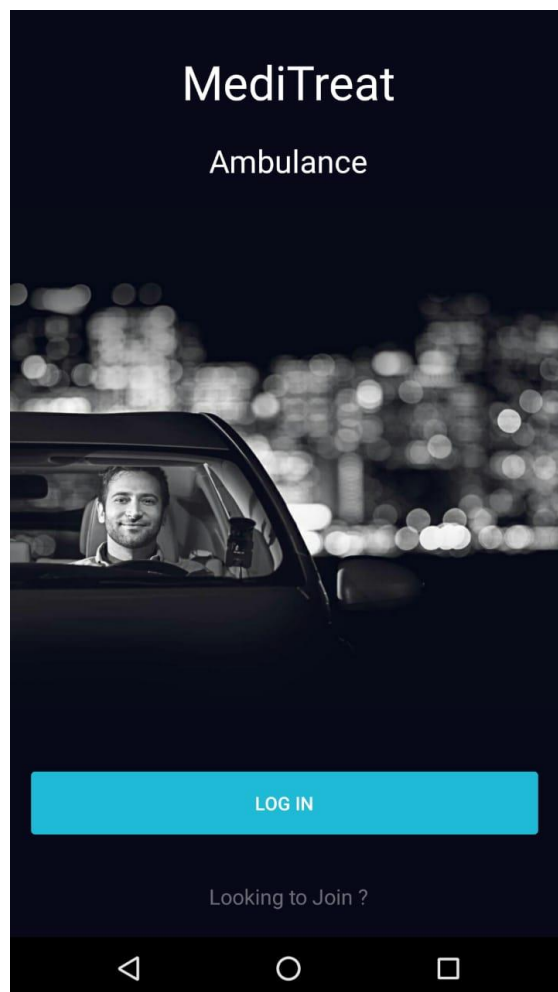### 5.1.2. Initial Application Interface Design:

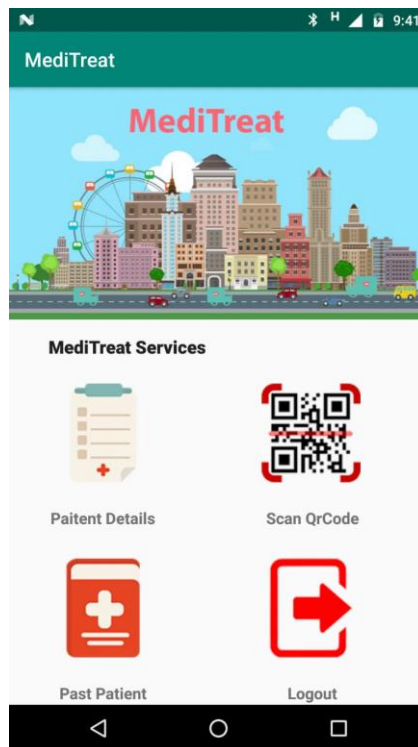1) Admin Dashboard:

2) Hospital Dashboard:

3) Meditreat ambulance mobile application

5.2. Design:

5.2.1. *Application Design*

1) Meditreat mobile application design

2) Patient Details Form

3) Live ambulance tracking on google maps

4) Hospital master page

5) Hospital emergency screen

5.3. Development:
5.3.1. Development Methods:

1) Ambulance Code:

2) Meditreat Admin Code:

```csharp
{
    MySqlConnection con = new MySqlConnection(connectionString);

    String hname = textBox1.Text;
    String cperson = textBox2.Text;
    String email = textBox3.Text;
    String contact = textBox4.Text;
    String address = richTextBox1.Text;


    if (hname == "" && cperson == "" && email == "" && contact == "" && address == "")
    {
        MessageBox.Show("Please Fill All Values");
    }
    else
    {
        try
        {
            con.Open();
            MySqlCommand cmd1 = new MySqlCommand("insert into HospitalMasters (HospitalName,HospitalAddress,HospitalContactPerson,HospitalEmailID,HospitalContactNumber,Status,Cr
            cmd1.ExecuteNonQuery();
            MessageBox.Show("Hospital Created");
            BindGridView();
            Clear();
        }
        catch (Exception ex)
        {
            MessageBox.Show(ex.ToString());
        }
        finally
        {
            con.Close();
        }
```

3) Meditreat Hospital Code:

```java
public class AmbulanceStatus extends AppCompatActivity {

    public RecyclerView recyclerView;
    public RecyclerView.LayoutManager layoutManager;

    FirebaseRecyclerAdapter<PlaceAmbulanceTo, ActiveAmbulanceViewHolder> adapter;

    FirebaseDatabase database;
    DatabaseReference request;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_ambulance_status);


        database = FirebaseDatabase.getInstance();
        request = database.getReference("Request");

        recyclerView = (RecyclerView)findViewById(R.id.recycler_ambulancestatus);
        recyclerView.setHasFixedSize(true);
        layoutManager = new LinearLayoutManager(this);
        recyclerView.setLayoutManager(layoutManager);

        if(getIntent() == null){
            LoadAmbulance();
        }
        else{
            LoadAmbulance();
        }
```

```csharp
1 reference
public void BindCombo1()
{
    DataRow dr;
    MySqlConnection con = new MySqlConnection(connectionString);
    con.Open();
    MySqlCommand cmd = new MySqlCommand("select * from PatientMasters where AllotedRoom = '" + SessionICU.rname + "' ", con);
    MySqlDataAdapter sda = new MySqlDataAdapter(cmd);
    DataTable dt = new DataTable();
    sda.Fill(dt);

    dr = dt.NewRow();
    dr.ItemArray = new object[] { 0, "--Select PatientName--" };
    dt.Rows.InsertAt(dr, 0);

    comboBox2.ValueMember = "PatientID";

    comboBox2.DisplayMember = "PatientName";
    comboBox2.DataSource = dt;

    con.Close();
}

1 reference
void AutoCompleteTextBoxPN()
{
    textBox1.AutoCompleteMode = AutoCompleteMode.SuggestAppend;
    textBox1.AutoCompleteSource = AutoCompleteSource.CustomSource;
    AutoCompleteStringCollection coll = new AutoCompleteStringCollection();

    try
    {
        MySqlConnection con = new MySqlConnection(connectionString);
```

```csharp
1 reference
private void Form1_FormClosed(object sender, FormClosedEventArgs e)
{
    Application.Exit();
}

1 reference
private void button3_Click(object sender, EventArgs e)
{
    EmergencyRoom emergencyRoom = new EmergencyRoom();
    emergencyRoom.Show();
    this.Hide();
}

1 reference
private void button10_Click(object sender, EventArgs e)
{
    CreateUser createUser = new CreateUser();
    createUser.Show();
    this.Hide();
}

1 reference
private void button4_Click(object sender, EventArgs e)
{
    ICULogin iCULogin = new ICULogin();
    iCULogin.Show();
    this.Hide();
}

1 reference
private void button9_Click(object sender, EventArgs e)
{
    DesignationMaster designationMaster = new DesignationMaster();
```

CHAPTER 6: PROCESS MODEL

6. PROCESS MODEL

Agile/ incremental

In incremental model, software is developed step by step into pieces. After one functionality is completed build, the next step/process is started for development. The increment can be small or large, ranging from a login screen to a set of mobile application, websites or data management screens

CHAPTER 7: TESTING

7. **Testing**:

Test Case:

Login	Valid User ID & Password	Pass
	Invalid User ID or Password	Fail
	Password<8	
Register	Email ID with @ and domain	Pass
	Email ID without @ and domain	Fail
	Mobile No. equals 10	Pass
	Mobile No.<10	Fail
	Password>=8	Pass
	Password<=8	Fail
QR Code Scan	If QR Code Placed Inside Green Frame	Pass
	If QR Code Placed Outside Green Frame	Fail
Emergency Screen	Tap on details to stop beep	Pass
	Check emergency patient details	Pass
Ambulance tracking	Start from source, tracking start	Pass
	if not click start, no tracking	Fail
	Stop at destination, tracking stop	Pass
OT scheduling	if filled details by staff, beep on time	Pass
	if details not filled, no remainders	Fail
Live camera	video calling to doctor from mobile camera	Pass
	doctor see patient on meditreat monitor	Pass
	if meditreat sofware not installed	Fail

CHAPTER 8 & 9: CONCLUSION AND

FUTURE SCOPE

8. CONCLUSION

Meditreat provides a smart hospital solution with the features like Live Ambulance tracking, Emergency Ambulance screen which provides live patient details, ICU scheduling.

9. FUTURE SCOPE

- Hospital Integration with IOT devices.
- Providing AI to each module.
- Ambulance booking through mobile application

CHAPTER 10: REFERENCES

10.References:

eSolutions, N. (2016, April 14). *NextGen eSolutions*. Retrieved from HospiLogix:
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https://www.draw.io/

PLAGARISM REPORT

INDUSTRY PROJECT COMPLETION CERTIFICATE

CAVITAK

CAVITAK MARKETING PRIVATE LIMITED

CIN : U52399GJ2011PTC064538-2010-11
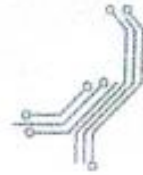
TO WHOM IT MAY CONCERN

This is to certify that Miss. Bhoomi Hasmukh Patel, Student of U.V. Patel College of Engineering, Ganpat University, in field of Computer Science and Engineering has successfully completed her 8th semester Internship at CAVITAK MARKETING PRIVATE LIMITED in duration from 10th December 2019 to 7th April 2019 as Software Developer. She had majorly involved in all project activity given to her.

During the period of her internship program with us she had been exposed to different process was found punctual, hardworking and inquisitive. We wish her every success in her life and career.
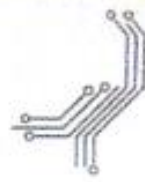
For, CAVITAK MARKETING PVT. LTD.

Authorised Signatory

Signature of Authority

Registered Corporate Office Address:
Cavitak, 9, Vitthalbhai Patel Colony, Opp. Lakhudi Talavadi, Naranpura, Ahmedabad - 380014

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CAVITAK

CAVITAK MARKETING PRIVATE LIMITED

CIN : U52399GJ2011PTC064538-2010-11

TO WHOM IT MAY CONCERN

This is to certify that Mr. Ketul Ileshkumar Patel, Student of U.V. Patel College of Engineering, Ganpat University, in field of Computer Science and Engineering has successfully completed his 8th semester Internship at CAVITAK MARKETING PRIVATE LIMITED in duration from 10th December 2019 to 7th April 2019 as Software Developer. He had majorly involved in all project activity given to him.

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For, CAVITAK MARKETING PVT. LTD.

Authorised Signatory

Signature of Authority

Registered Corporate Office Address:
Cavitak, 9, Vitthalbhai Patel Colony, Opp. Lakhudi Talavadi, Narampura, Ahmedabad - 380014

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