A Project Report On

# Electric Vehicle Information System Website

*Submitted to*

**Chhattisgarh Swami Vivekanand Technical University, Bhilai**

**Bachelor of Technology**

*In*

**Computer Science & Engineering**

*By*

Abhay Singh Thakur (303602218053)

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Under the Guidance of

**Dr. Abha Choubey Mam,**

**Assistant Professor**

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SHRI SHANKARACHARYA TECHNICAL CAMPUS

**Department of Computer Science & Engineering**

**Shri Shankaracharya Technical Campus,**

**Shri Shankaracharya Technical Campus, Junwani, Bhilai**

**Session :-** 2021-22

# Declaration

We, the undersigned, solemnly declare that the report of the project work entitled " **Electric Vechicle Information System Website** ", is based on our own work carried during the course of my study under **Dr. Abha Choubey , Assistant Professor, CSE department of SSGI**, Bhilai.

I assert that the statements made and conclusions drawn are an outcome of the project work. I further declare that to the best of my knowledge and belief that the report does not contain any part of my work which has been submitted for the award of any other degree/certificate of this University or any other University.

_____

(signature)

**Abhay Singh Thakur (303602218053)**

**Enrollment No: BF5284**

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**Enrollment No: BF5272**

**Gangadhar Swain (303602218046)**

**Enrollment No: BF5277**

# Certificate

This is to certify that the report of the project submitted is an outcome of the project work entitled "**Electric Vehicle Information System Website** " carried out by **Abhay Singh Thakur** bearing **Roll No: 303502218053**,**Basant Kumar Nahak** bearing **Roll No: 303602218041** , **Gangadhar Swain** bearing **Roll No: 303602218046** and carried out under my guidance and supervision for the award of Degree of Engineering in Computer Science & Engineering (FET) of Chhattisgarh Swami Vivekanand Technical University, Bhilai (C.G.) to the best of my knowledge the report.

Embodies the work of the candidate themselves, Has duly been completed, Fulfills the requirement of the Ordinance relating to the BE degree of the University, Is up to the desired standard for the purpose of which is submitted

_____ _____

(Signature of the HoD with Seal) (Signature of the Guide)

**Dr. Abha Choubey**
**Assistant Professor**
**Computer Science and Engineering**
**SSEC**

The project work as mentioned above is the hereby being recommended and forwarded for examination and evaluation.

_____

(Signature of the Head of Institution with Seal)

# Certificate By The Examiners

This is to certify that the project work entitled
"**Electric Vehicle Information System Website** "
Submitted by

| | | |
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| **Abhay Singh Thakur** | 303502218053 | Enrollment No: BF5284, |
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has been examined by the undersigned as a part of the examination for the award of the Bachelor of Engineering degree in Computer Science & Engineering (FET) of Chhattisgarh Swami Vivekanand Technical University, Bhilai.

_____ _____

Internal Examiner External Examiner

Date:

# Acknowledgement

Working for the project has been a great experience for us. There were moments of anxiety, when we could not solve a problem for several days. But we have
enjoyed the process and are thankful to all people associated with us during this period.

We convey our sincere thanks to our project guide **Dr. Abha Choubey , Asst. Professor** for providing us all sorts of facilities. His support and guidance helped us to carry out the project. We owe a great department of her gratitude for his constant advice, support, cooperation & encouragement throughout the project.

We would like to express the deep gratitude to respected **Dr. Abha Choubey** , **Asst. Professor** for his ever helping and support. We also pay special thanks for helpful solutions and comments enriched by his experience, which improved our ideas for betterment of the project.

We would also like to express our deep gratitude to our college management **Shri I.P. Mishra, Chairman (Shri Gangajali Education Society, Bhilai), Mrs. Jaya Abhishek Mishra, President (Shri Gangajali Education Society, Bhilai), Dr. P.B. Deshmukh, Dr. Siddharth Chaube(HoD), Director (SSTC) & Dr. Samta Gajbhiye (HoD CSE Department)** for providing an educational ambience. It will be our pleasure to acknowledge. Utmost cooperation and valuable suggestions from time to time given by our staff members of our department to whom we owe our entire computer knowledge and also we would like to thank all those persons who have directly or indirectly helped us by providing books and computer peripherals and other necessary amenities which helped us in the development of this project which would otherwise have not been possible.

**Abhay Singh Thakur**

**Basant Kumar Nahak**

**Gangadhar Swain**

# ABSTRACT

Face recognition is among the most productive image processing applications and has a pivotal role in the technical field. Recognition of the human face is an active issue for authentication purposes specifically in the context of attendance of students. Attendance system using face recognition is a procedure of recognizing students by using face biostatistics based on the high definition monitoring and other computer technologies. The development of this system is aimed to accomplish digitization of the traditional system of taking attendance by calling names and maintaining pen-paper records. Present strategies for taking attendance are tedious and time-consuming. Attendance records can be easily manipulated by manual recording. The traditional process of making attendance and present biometric systems are vulnerable to proxies. This paper is therefore proposed to tackle all these problems. The proposed system makes the use of Haar classifiers, KNN, CNN, SVM, Generative adversarial networks, and Gabor filters. After face recognition attendance reports will be generated and stored in excel format. The system is tested under various conditions like illumination, head movements, the variation of distance between the student and cameras. After vigorous testing overall complexity and accuracy are calculated. The Proposed system proved to be an efficient and robust device for taking attendance in a classroom without any time consumption and manual work. The system developed is cost-efficient and needs less installation..

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# INTRODUCTION

It is hard to pinpoint the invention of electric car to one inventor or country, instead it was a series of breakthroughs from battery to electric motors in 1800's that led to the first electric vehicle on the road.

In India, the concept of electric vehicles was unveiled under ' National Electric Mobility Mission Plan(NEMMP) 2020' in 2012 to address the issues of energy security and vehicle pollution.

In 2001, the first ever electric car 'Reva' was launched in India by Reva Electric Car Company.

The world is moving towards the sustainable energy like solar energy, wind energy, hydropower energy. These source of energy helping us to generate the electrical energy which is used in many different sectors that are:

- Automotive Sector
- Telecommunication Sector
- Electronic and Electrical Sector.

Automotive Sector using these electric energy to make vehicle powered by battery. These vehicle is called EVs. These vehicle with rechargeable batteries and no gasoline engine. All energy to run vehicle comes from the battery pack which is recharged from grid.

Many companies are making these types of vehicle by which the customer is not getting the right information and getting confuse by the market for buying an electric powered vehicle.

Electric vehicles will play a pivot role in changing the environment and economy around the globe in the next two decades.

# 2. INTRODUCTION TO ELECTRIC VEHICLE ECOSYSTEM

We are providing a solution for these problem. We are making a website that has almost anything and everything about an electric vehicle.

The website **EVplan** providing all the information related to an electric vehicle like pricing, companies, type of battery, rechargeable, battery exchange etc.

We provide information about all type of vehicle like cars, bike, transport vehicles, bicycle etc. we also provide the news and state and central government schemes and subsidy related to electric vehicles .

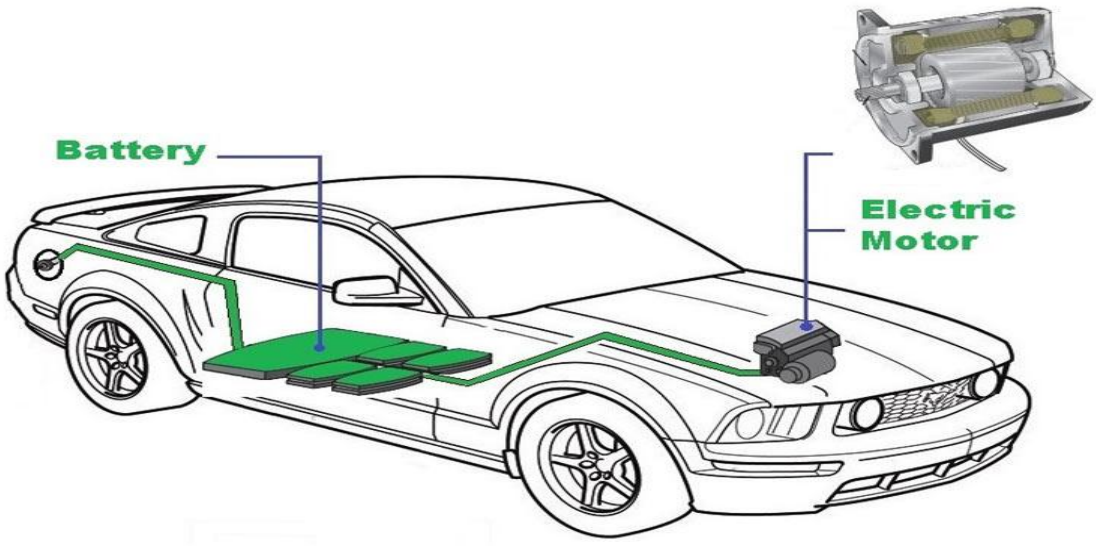
Our website helps the customer to make an opinion in their mind about an particular electric vehicle. And type of vehicle he/she can buy and of which companies.

## 2.1 Type Of Electric Vehicles

There are four types of electric vehicles available:

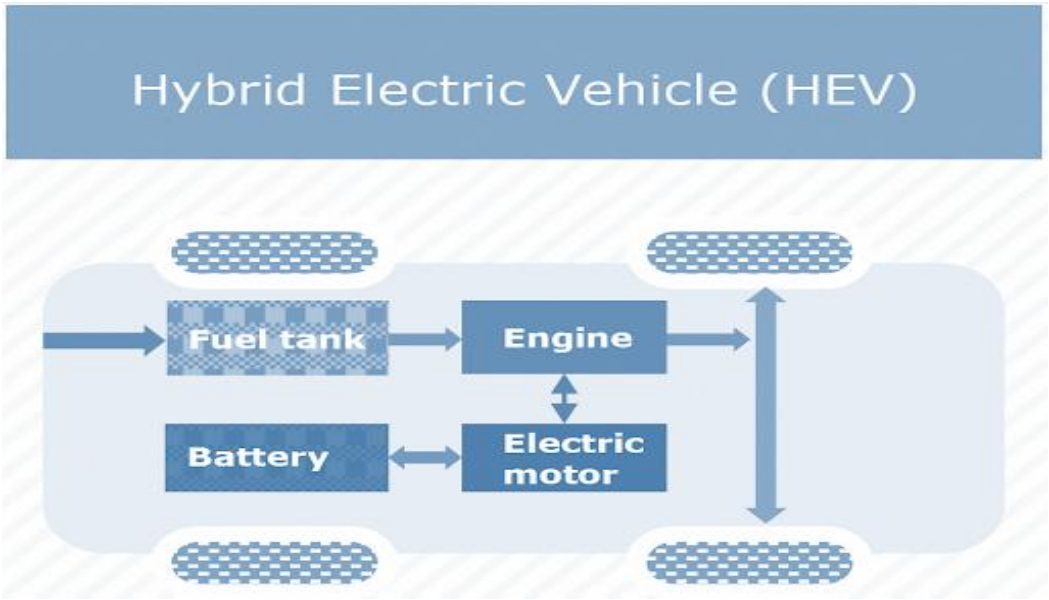
- Battery Electric Vehicle (BEV)
- Hybrid Electric Vehicle (HEV)
- Plug-in Hybrid Electric Vehicle (PHEV)
- Fuel Cell Electric Vehicle (FCEV)

**Battery Electric Vehicles (BEVs)**



BEVs are also known as All-Electric Vehicles (AEV). Electric Vehicles using BEV technology run entirely on a battery-powered electric drivetrain. The electricity used to drive the vehicle is stored in a large battery pack which can be charged by plugging into the electricity grid. The charged battery pack then provides power to one or more electric motors to run the electric car. To find out more about BEVs, click below."

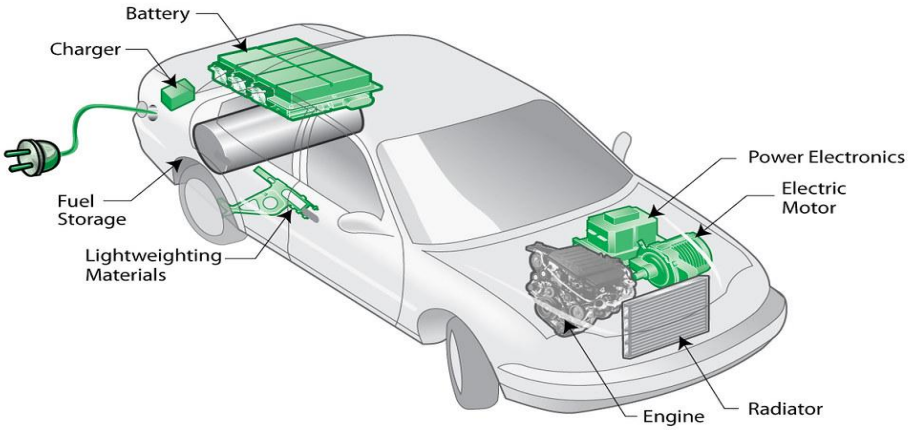
**Hybrid Electric Vehicle (HEV):**



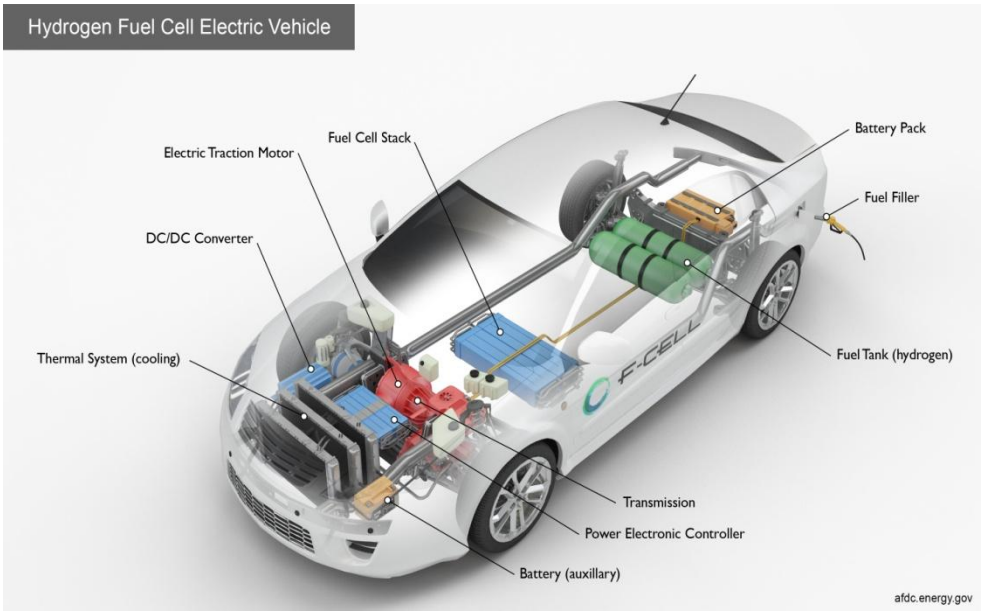

HEVs are also known as series hybrid or parallel hybrid. HEVs have both engine and electric motor. The engine gets energy from fuel, and the motor gets electricity from batteries. The transmission is rotated simultaneously by both engine and electric motor. This then drives the wheels.

**Plug-in Hybrid Electric Vehicle (PHEV)**

FCEVs are also known as Zero-Emission Vehicles. They employ ‘fuel cell technology’ to generate the electricity required to run the vehicle. The chemical energy of the fuel is converted directly into electric energy.




## Fuel Cell Electric Vehicle(FCEV):




FCEVs are also known as Zero-Emission Vehicles. They employ ‘fuel cell technology’ to generate the electricity required to run the vehicle. The chemical energy of the fuel is converted directly into electric energy.

# 3. MATERIAL AND MATERIALS

This is the most important section of the thesis. This section describes the detailed workflow of the project and the necessary theoretical background. Tools and Technologies

## 3.1 TOOLS AND TECHNOLOGIES

Tools and techniques required in these projects are generally the hardware and software that work and perform specific tasks for the complete running of the program.

### 3.1.1 HARDWARE REQUIRED

1. Memory: 4 GB RAM.
2. Disk space: 20 GB.

### 3..1.1 SOFTWARE REQUIRED

1.Mac or laptop with x86-64 (64 bit) compatible processor.
2. Operating systems: Google Android, Apple IOS etc.
3. Internet Connections.
**1.** Environment: Visual Studio Code.

# 4, PROGRAMMING LANGUAGES AND LIBRARIES USED

## 4.1 React JS

ReactJS tutorial provides basic and advanced concepts of ReactJS. Currently, ReactJS is one of the most popular JavaScript front-end libraries which has a strong foundation and a large community.

ReactJS is a **declarative**, **efficient**, and flexible **JavaScript library** for building reusable UI components. It is an open-source, component-based front end library which is responsible only for the view layer of the application. It was initially developed and maintained by Facebook and later used in its products like WhatsApp & Instagram.

A ReactJS application is made up of multiple components, each component responsible for outputting a small, reusable piece of HTML code. The components are the heart of all React applications. These Components can be nested with other components to allow complex applications to be built of simple building blocks. ReactJS uses virtual DOM based mechanism to fill data in HTML DOM. The virtual DOM works fast as it only changes individual DOM elements instead of reloading complete DOM every time.

## 4.2 Visual Studio Code

Visual Studio Code is a code editor in layman's terms. Visual Studio Code is "a free-editor that helps the programmer write code, helps in debugging and corrects the code using the intelli-sense method ". In normal terms, it facilitates users to write the code in an easy manner. Many people say that it is half of an IDE and an editor, but the decision is up to to the coders. Any program/software that we see or use works on the code that runs in the background. Traditionally coding was used to do in the traditional editors or even in the basic editors like notepad! These editors used to provide basic support to the coders.

Some of them were so basic that it was very difficult in writing basic English level programs in them. As time went by, some programming languages needed a specific framework and support for further coding and development it, which was not possible using these editors. VI Editor, Sublime Text Editor, is one of the many kinds of editors that came into existence. The most prominent and which supports almost every coding language is VISUAL STUDIO CODE. Its features let the user modify the editor as per the usage, which means the user is able to download the libraries from the internet and integrate it with the code as per his requirements.

## 4.3 CSS , SCSS, Bootstrap

**CSS:**

**C**ascading **S**tyle **S**heets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.

CSS handles the look and feel part of a web page. Using CSS, you can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs,variations in display for different devices and screen sizes as well as a variety of other effects.

**SCSS:**

Scss is **S**assy **C**ascading **S**tyle **S**heets Scss can be separated by a semicolon and run on the same line

SCSS is a preprocessor which lets you use features that aren’t a part of the wider CSS standard yet, and provides better workflows for maintaining your stylesheets. With SCSS preprocessor, you can reduce the amount of times you repeat yourself and ensure you’re writing clean, maintainable code for the future. Scss can take css code and work.

SCSS is fully compatible with the syntax of CSS, while still supporting the full power of Sass. Scss is an extension of the syntax of CSS. This means that every valid CSS stylesheet is a valid SCSS file with the same meaning. In addition, SCSS understands most CSS hacks and vendor-specific syntax, such as IE's old filtersyntax. This syntax is enhanced with the Sass features described below. Files using this syntax have the .scss extension.

**Bootstrap:**

Bootstrap is a free and open source front end development framework for the creation of websites and web apps. The Bootstrap framework is built on HTML, CSS, and JavaScript (JS) to facilitate the development of responsive, mobile-first sites and apps.

Responsive design makes it possible for a web page or app to detect the visitor's screen size and orientation and automatically adapt the display accordingly; the mobile first approach assumes that smartphones, tablets and task-specific Mobile apps are employees' primary tools for getting work done and addresses the requirements of those technologies in design.

Bootstrap includes user interface components, layouts and JS tools along with the framework for implementation. The software is available precompiled or as source code.

## 4.4 jQuery

jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers.

jQuery makes a web developer's life easy. It provides many built-in functions using which you can accomplish various tasks easily and quickly.

# 5.WORKING

## 5.1 METHODOLOGY

- The renewable energy demand is increasing day by day and there is a huge market of auto -motive industry. The aim of our website Evplan is to become a part of these huge demanding and growing market and give a better market review related to electric vehicle.
- The main purpose of our website Evplan is to create an awareness about how the electric vehicle is design and developed. And what are the type of electric vehicle are present in the market like hybrid modal electric vehicle, rechargeable battery vehicle, Solar energy rechargeable vehicle.

We have categories our website vehicle information in 3 category that are:

1.Pricing and Overview of vehicle - Our website gives the 360 view of electric vehicles and provide all advantages and disadvantages of the vehicles like price, battery type , battery hour etc.

**2.** News and Research related to Vehicle – In these category we are giving all the information and research ongoing round the world related to electric vehicles.

3. Government Schemes related to vehicle – In these category we are giving information related to various state and central government schemes and subsidy to buy electric vehicle. And all government work related to electric vehicles.

## 5.2 IMPLEMENTATION

This section describes how the algorithm was implemented to design the system and the testing of the system. The website was created using React JS framework. This project implements the tools and technologies mentioned.

## 5.3 SYSTEM DESIGN

The project follows three-layered architecture, which is described below.

### PRESENTATION LAYER

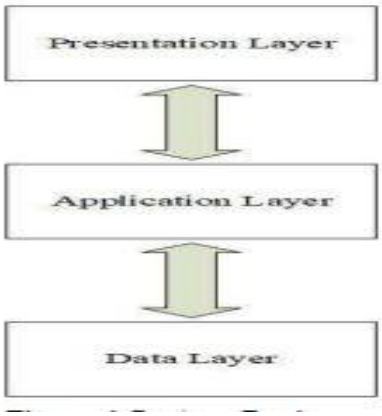
This layer is responsible for the user interface. All the components that users see and interact with within the application are in this layer

### APPLICATION LAYER

Application layer controls the overall functionality of the system. Functionality such as Visiting home page, Type of EV page, and all Government Scheme is all done in this layer.

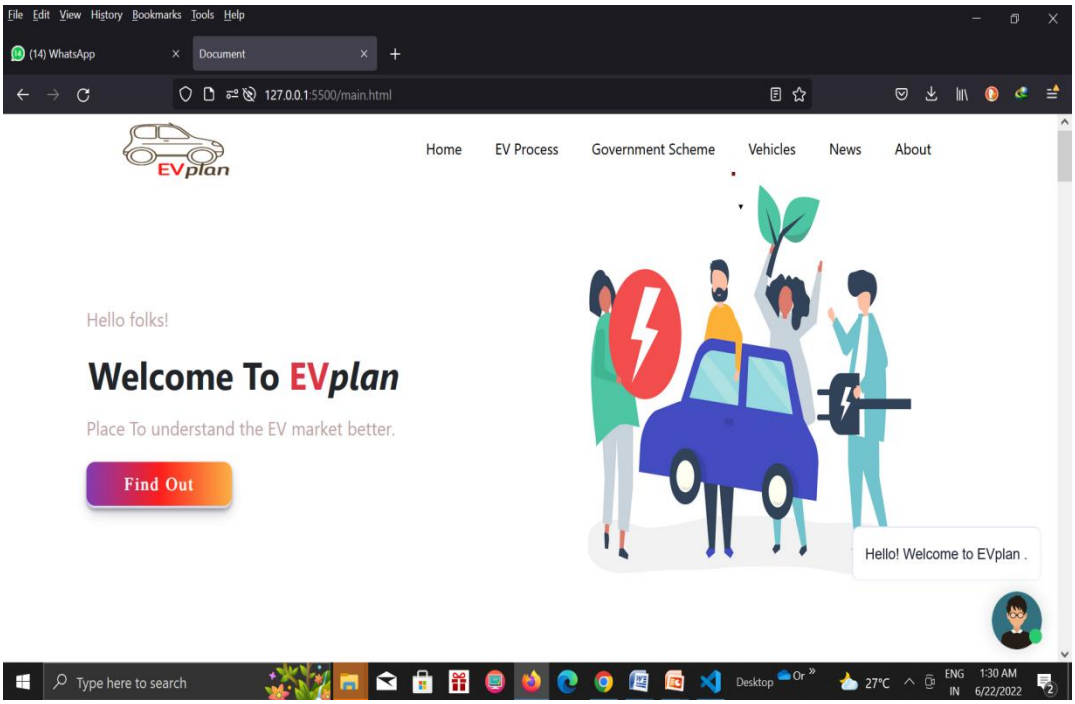
### DATA LAYER

In this layer, Data and Information are stored and retrieved in the database. The names, images of electric vehicles and information of vehicle are stored in the database.

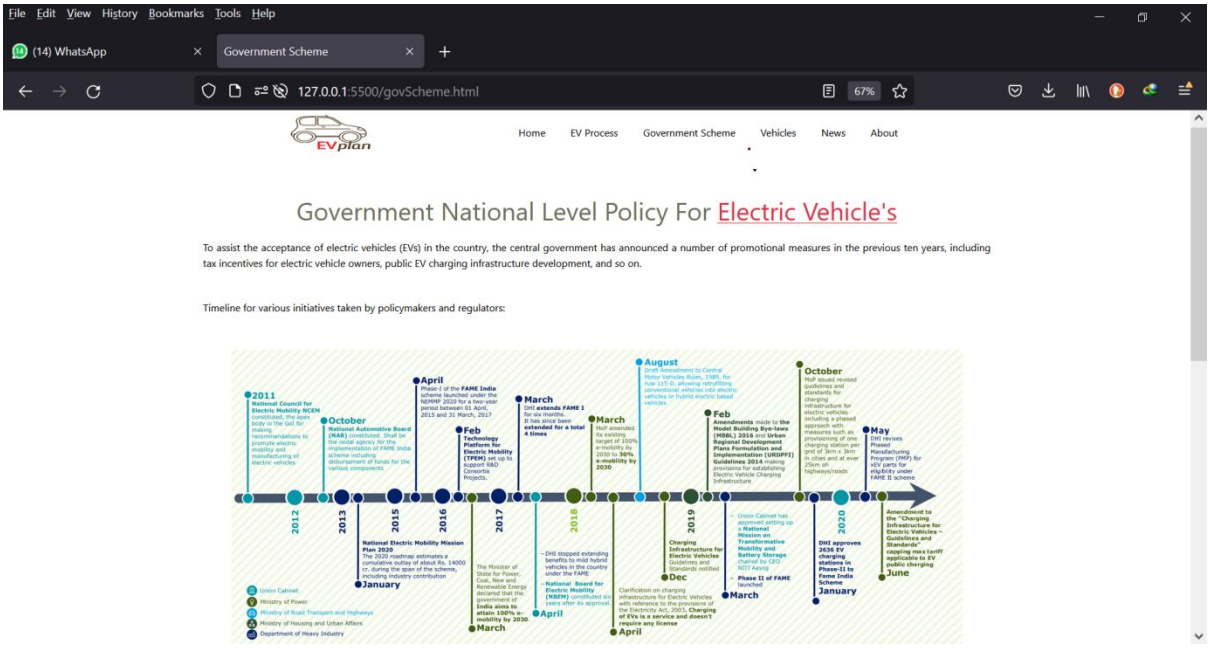


## 6. SCREENSHOTS OF THE OUTPUT

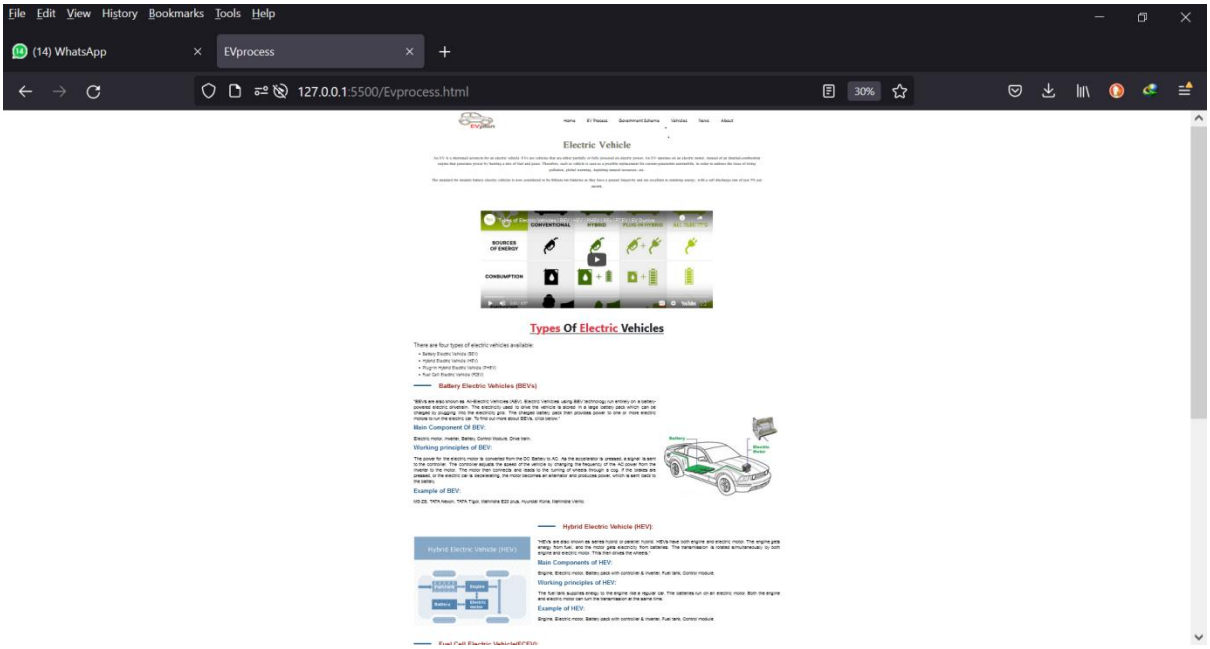
Home Page :

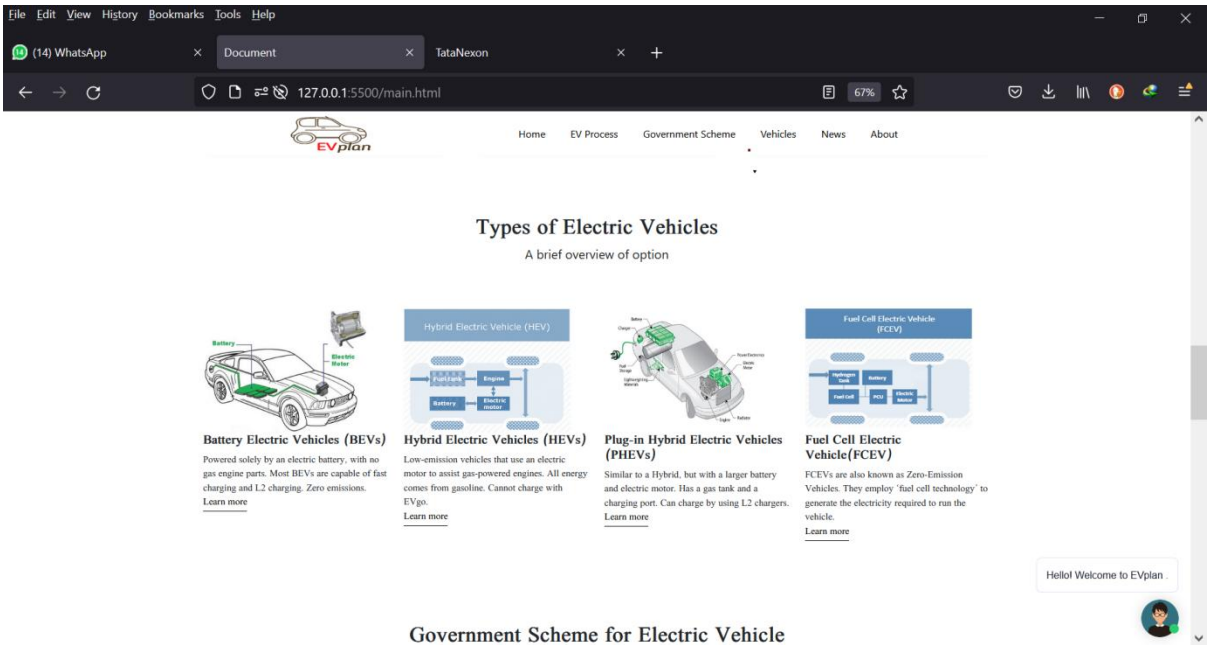



Government Scheme Related to EV Page :

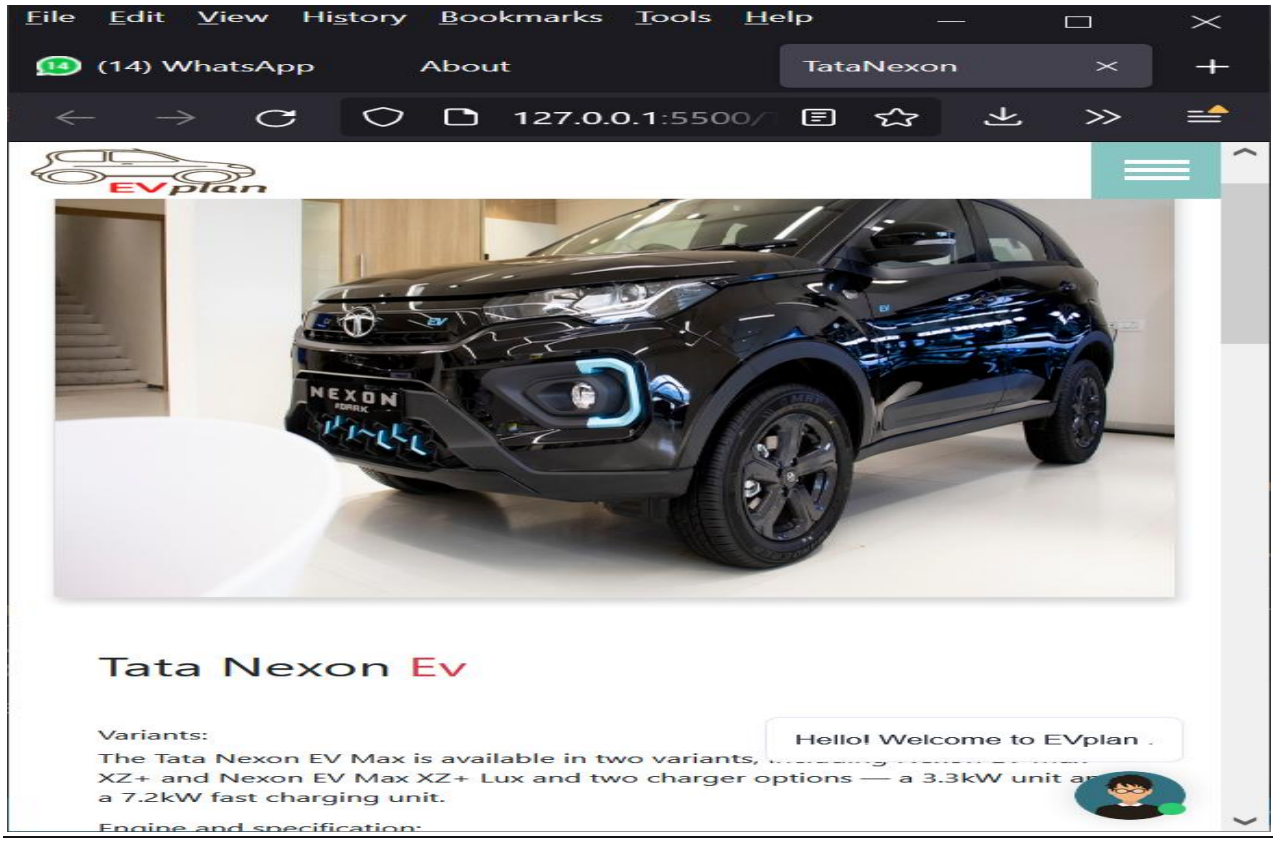


# Type and Working of EV Page :



Description Of EV Page :




**Tata Nexon EV**

## 7. ADVANTAGES AND DISADVANTAGES

### Advantages

- They’re easier on the environment.
- Electricity is cheaper than gasoline.
- Maintenance is less frequent and less expensive.
- They’re very quiet.
- They can shorten your commute time.

### Disadvantages

- Most EVs have pretty short ranges.
- Recharging can take a while.
- They’re a large initial investment.
- Charging station availability is inconsistent.
- There are fewer choices.

## 8. RESULT AND DISCUSSION

- The renewable energy demand is increasing day by day and there is a huge market of auto -motive industry. The aim of our website Evplan is to become a part of these huge demanding and growing market and give a better market review related to electric vehicle.
- The main purpose of our website Evplan is to create an awareness about how the electric vehicle is design and developed. And what are the type of electric vehicle are present in the market like hybrid modal electric vehicle, rechargeable battery vehicle, Solar energy rechargeable vehicle.

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## 9. FUTURE SCOPE

In future we are planning we add some more category like :

1. Comparing of two electric vehicle – In these we compare two electric vehicle of same price which help the customer to make opinion about the vehicle.

2. Providing Information related to charging station - In future we can add information related to charging station and various battery company.
   We can use map in future to the station.

3. Advertisement – In future we can tie – up with various electric vehicle company to their products.

4. In future we are planning to these website into an application form by these user can easily install the app in their smart phones.

# 10. CONCLUSION

The goal of the project was to build a Electric Vehicle Information System platform for customer better understanding. Concepts of Electric Vehicle System and its working are heavily discussed in this thesis. The result of the project was a successful prototype of a Electric Vehicle Information system where the customer get all the information related to EV market and make an overview for buying an vehicle. Overall, the project was successful in showcasing information of Electric vehicles can be extended in market for a business idea. This project has the potential for further development in the future by adding more features for customer. More features such as compare of vehicle, advertisement of vehicle company , Giving information of EV mechanism etc..

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