Charotar University of Science and Technology (CHARUSAT)
Information Technology

Recent Development on Electric Vehicles

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Abstract – This paper provide an overview of the recent work of electric vehicle in the region. The paper describes the development and the comparison of different part of components. The major components in battery technology, charger design, motor, steering and braking are examined. The paper finally shows some electric vehicle prototype as a conclusion of the papers.

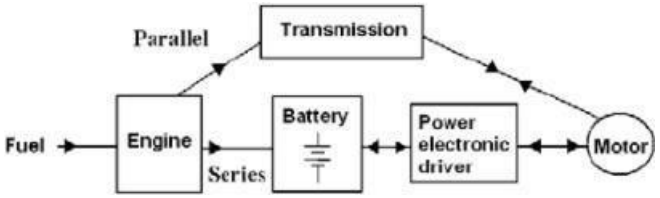
Keywords – Electric vehicle, AFS, steering system, braking system, ABS, battery management systems, BMS, Inverter.

I. INTRODUCTION

Electrical vehicle (EV) based on electric propulsion system. No internal combustion engine is used. All the power is based on electric power as the energy source. The main advantage is the high efficiency in power conversion through its proposition system of electric motor. Recently there has been massive research and development work reported in both academic and industry. Commercial vehicle is also available. Many countries have provided incentive to users through lower tax or tax exemption, free parking and free charging facilities. On the other hand, the hybrid electric vehicle (HEV) is an alterative. It has been used extensive in the last few years. Nearly all the car manufacturers have at least one model in hybrid electric vehicle. The questions come to us: Which vehicle will dominate the market and which one is suitable for future? This paper is to examine the recent development of electric vehicle and suggest the future development in the area.

II. EV AND HEV

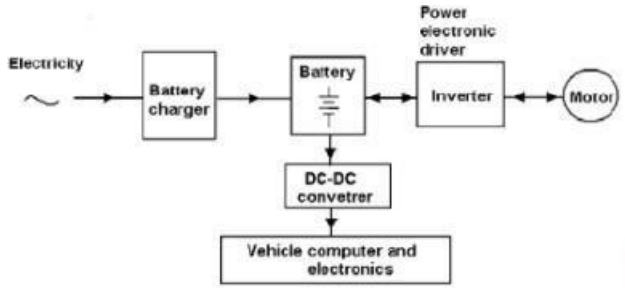
HEV has been promoted extensively in the last decade. Nearly each manufacturer has at least one HEV in the market [1]. It is supposed to rescue the battery energy storage problem at that time. Using hybrid vehicle it allows the electric power can be obtained from engine. The HEV is broadly divided into series hybrid and series hybrid. The engine power of the series hybrid is connected totally to the battery. All the motor power is derived from the battery. For the parallel hybrid, both the engine and motor contribute the propulsion power. The torque is the sum of both motor and engine. The motor is also used as a generator to absorb the power from engine through the transmission. Bothe series or hybrid can absorb power through regeneration during braking or deceleration.



Nevertheless, HEV still has emission. The introduction of plug-in HEV that solves some of the problem [2]. It accepts the electric power to battery through plug in from the mains. Therefore when convenient, users may charge the battery using AC from the mains.

III. THE KEY COMPONENTS IN EV

The electric vehicle is rather simple in structure. The key components are the propulsion parts.



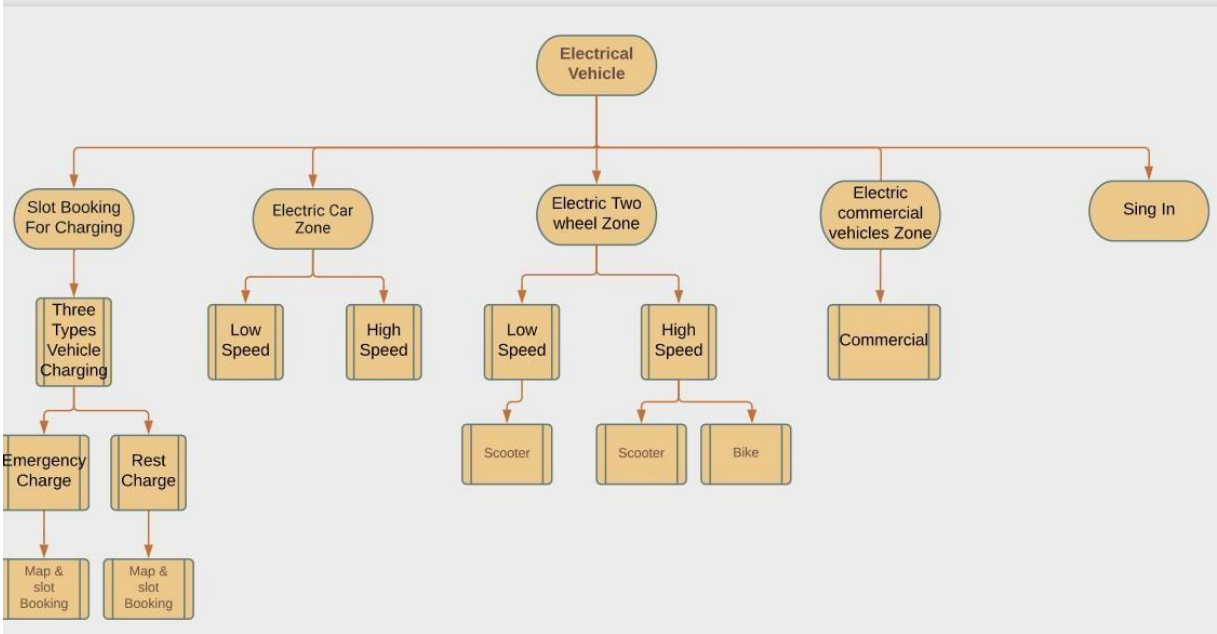
The battery is the main energy storage. The battery charger is to convert the electricity from mains to charge the battery [3]. The battery voltage is DC and I is inverted into switched-mode signal through power electronic inverter to drive the motor. The other electronic components in a vehicle can be supplied to the battery through DC-DC converter that step down the voltage from the battery pack to lower voltage such as 5V-20V.

IV. THE MOTOR

There are a number of motors available for electric vehicle: DC motors, Induction motor, DC brushless motor, Permanent magnetic synchronous motor and Switched reluctance motor.

V. Flow Of The System

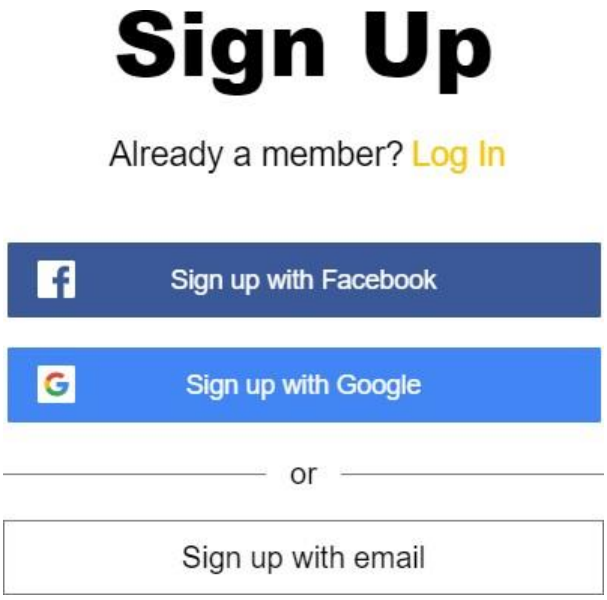
Below shown is the flowchart of how the application works.The paper mainly focuses on the software development. The block diagram of the android app is as depicted in Fig. 1. The app functions to establish a connection between the admin,user and the smart carts. When you open the application if you new user so first you have create new account and after you as a user login and enter home page. If you are an admin so login as an admin and enter admin page.



VI. MODULE DESCRIPTION

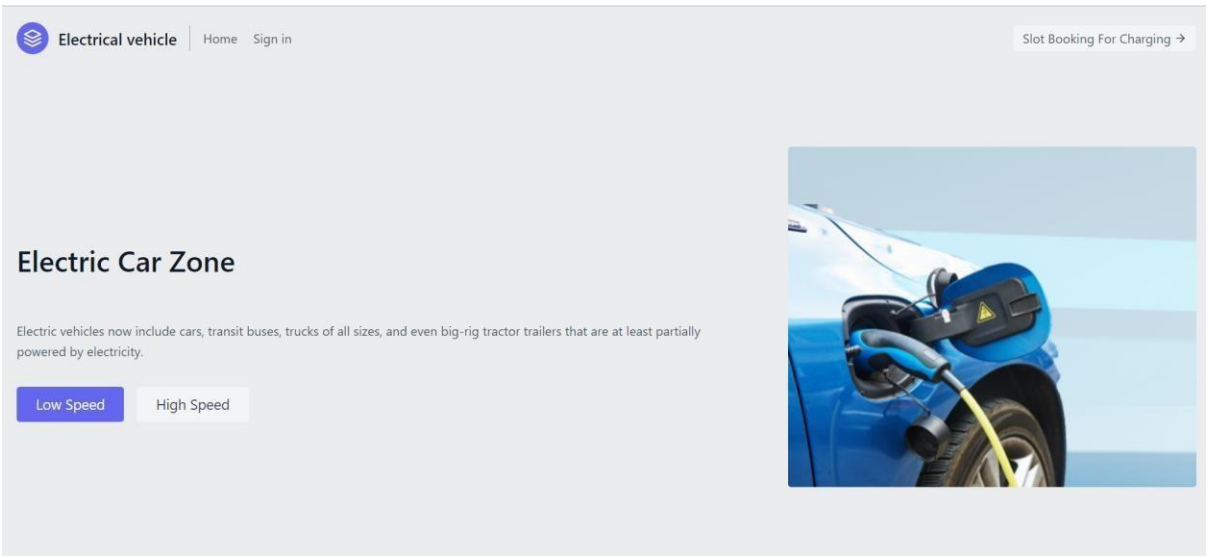
A. Home page and login page :

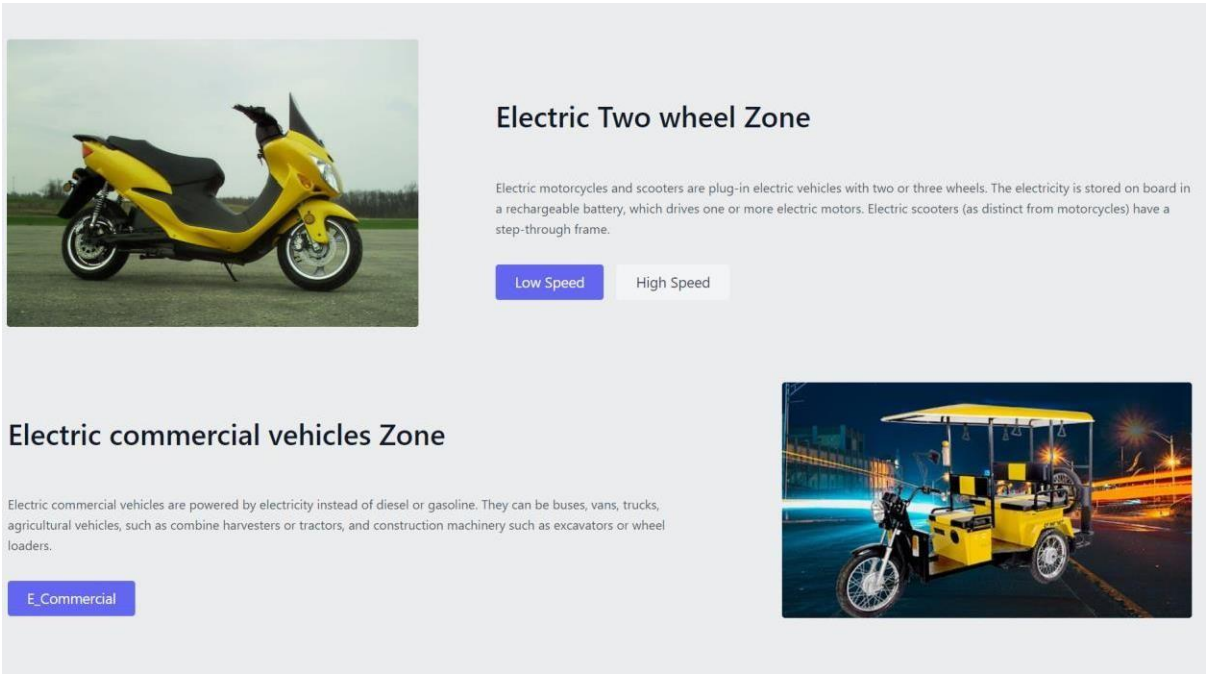
When you enter in application first of all these page you see. This page is basically work that if new user come so first register or create new account. Already have account so that login itself.



B. Enter Home pages:

This page shows you All Electric Vehicles. First Show on Electric Car Zone. This section Shown to Two section Low speed and High speed. When you click on that show to all cars lonch in india. All different Car available in this site. Then next shown Electric Two wheeler zone. That part is same like as car zone. Click on Low speed Two wheel, open that Scooter. And Fast speed section in two types Two wheel Bike and Scooter. And Last Zone is commercial. Commercial vehicle All available on launch in india.





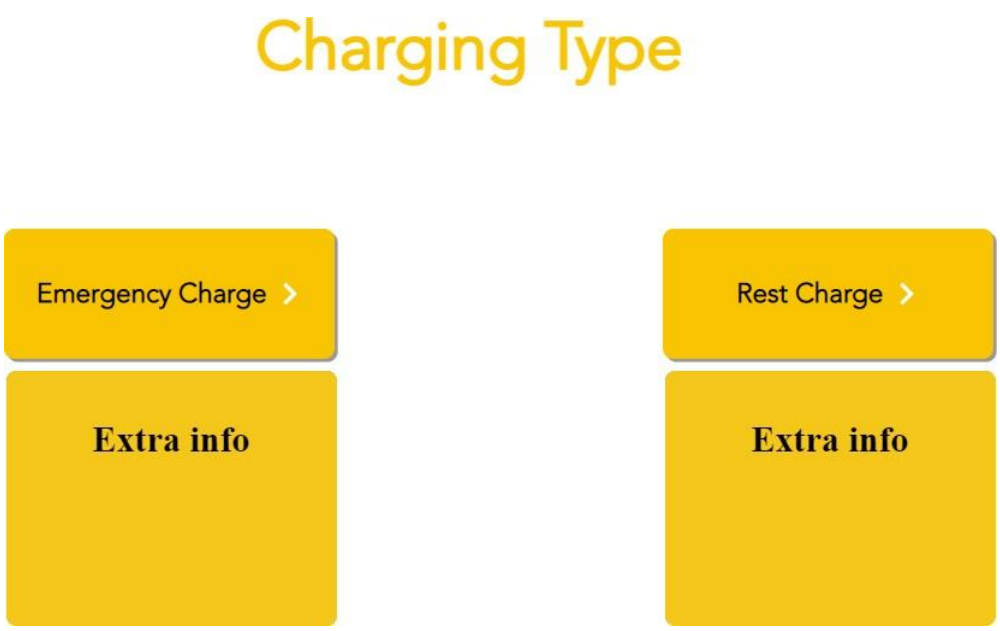
All vehicle belong Show specification And down side click butten get view all details.

C. Enter Slot Booking For Charging.

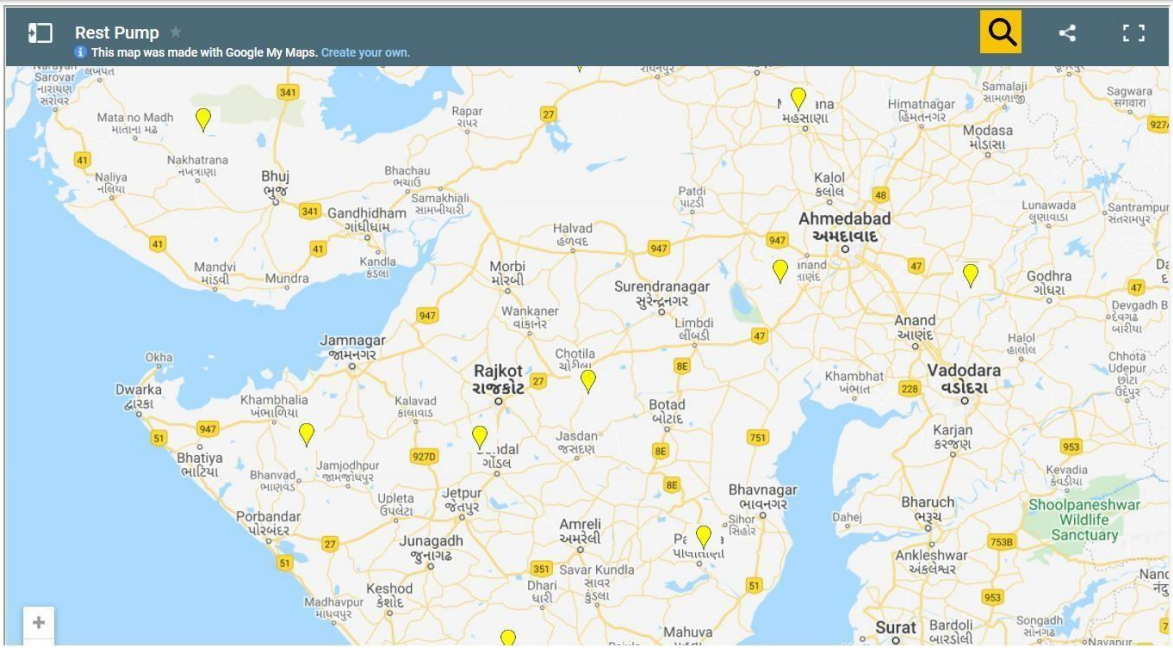
This Section for slot booking of charging.

This page shows you catagories charging points. Three types vehicles charging sloat available.

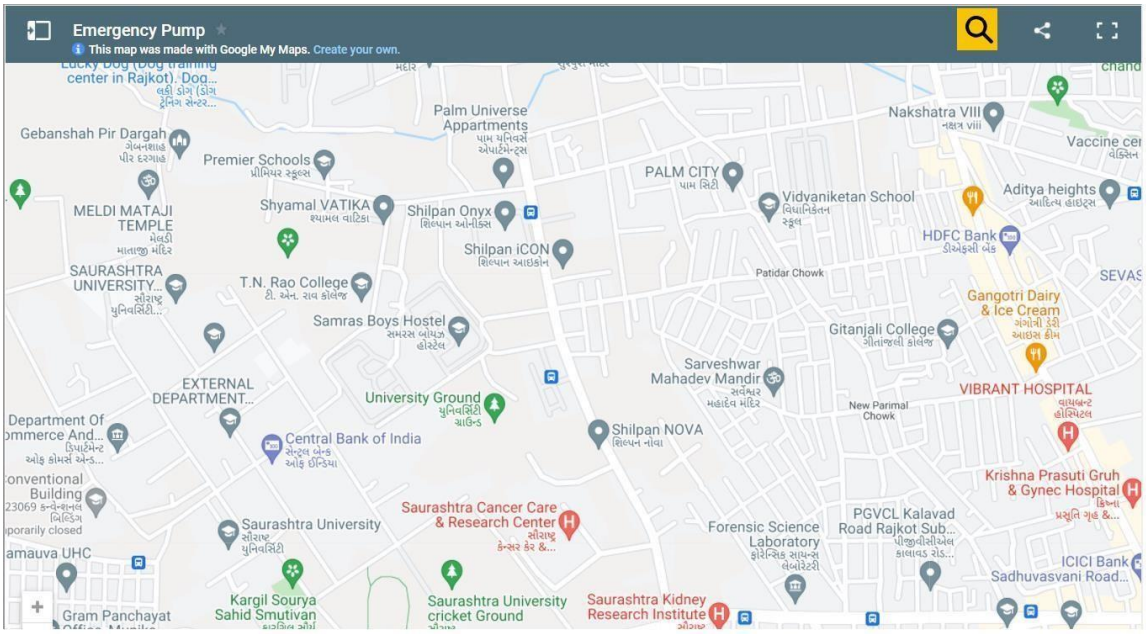
This page Shows You two types Charging of vehicles. Emergency charge and Rest Charge.

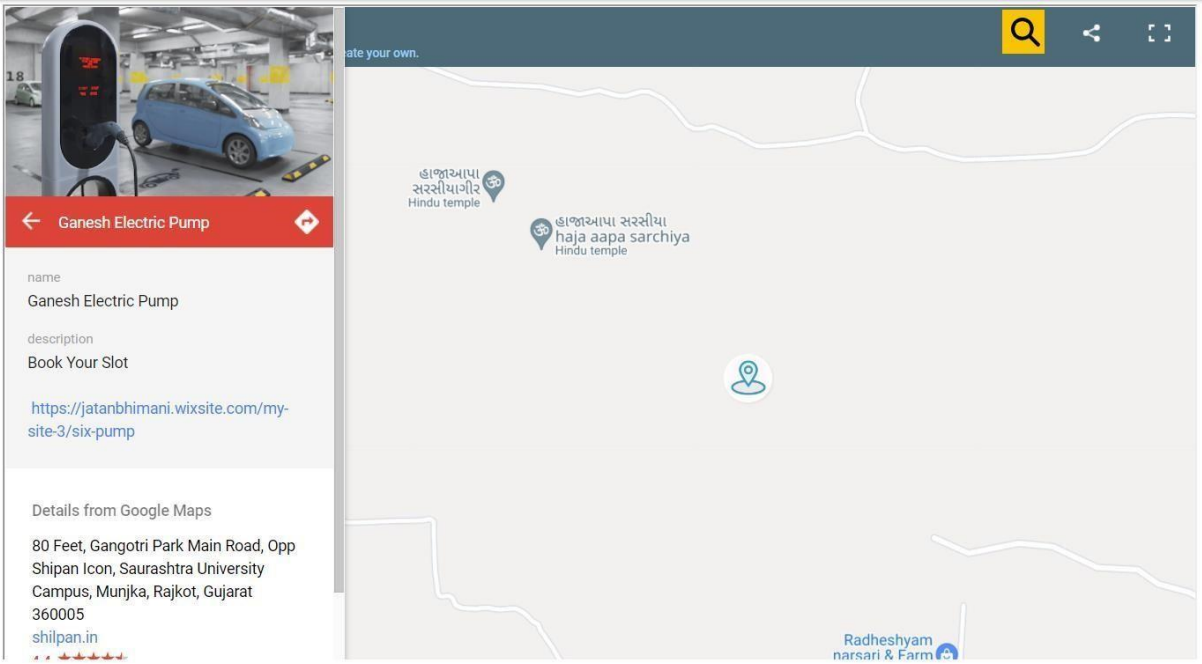


This page shows rest charging pump. Left side button click on that shown to all pumps.



This page shows Emergency charging pump. Left side button click on that shown to all pumps.





This page shows you pumps location and your vehicle sloat booking. This page help you book your vehicle charging so that Time less for charging your vehicle.

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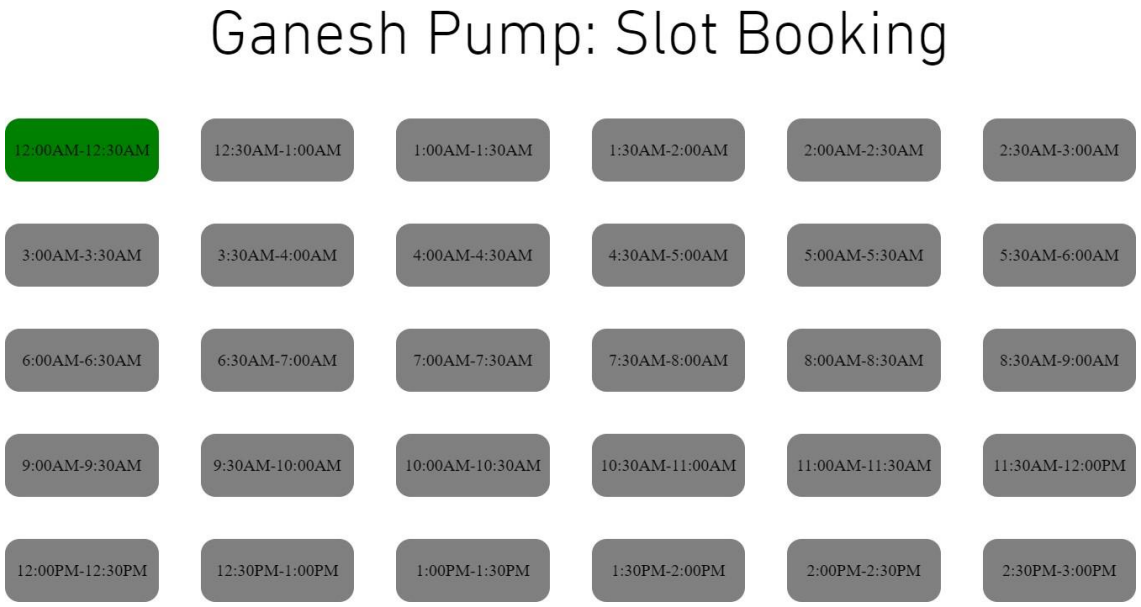

D. PROJECT OUTCOMES

This paper discusses the recent development in electric vehicle. The paper first describes general structure and discusses the energy storage. It then extends to the future vehicle components. The paper provides an overview of the recent EV work in the region**.**

In this paper, we analyzed the types of EVs, the technology used, the advantages with respect to the internal combustion engine vehicles, the evolution of sales within the last years, as well as the different charging modes and future technologies. We also detailed the main research challenges and open opportunities. Regarding EVs, batteries are a critical factor, as these will determine the vehicle's autonomy. We analyzed several kinds of batteries, according to these features. We also presented the possible technologies that can be used in the future, such as the graphene, which is expected to be a solution that enables the storage of higher amounts of power, and charge in shorter periods of time. The EV could also benefit from this type of technology, reaching higher ranges, something that could help its adoption by drivers and users. The development of batteries with higher capacities will also favor the use of the fastest and most powerful charging modes, as well as better wireless charging technologies. The creation of a unique connector that can be globally used is another aspect that could benefit the deployment of electric vehicles. The EV will play a highly important role in the future Smart Cities, and having different charging strategies that can adapt to the users' needs will be of special relevance. Therefore, future BMS should consider the new scenarios that were introduced by new batteries and Smart Cities requirements.

E. PROJECT CONCLUSION

The progress that the electric vehicle industry has seen in recent years is not only extremely welcomed, but highly necessary in light of the increasing global greenhouse gas levels. As demonstrated within the economic, social, and environmental analysis sections of this webpage, the benefits of electric vehicles far surpass the costs. The biggest obstacle to the widespread adoption of electric-powered transportation is cost related, as gasoline and the vehicles that run on it are readily available, convenient, and less costly. As is demonstrated in our timeline, we hope that over the course of the next decade technological advancements and policy changes will help ease the transition from traditional fuel-powered vehicles. Additionally, the realization and success of this industry relies heavily on the global population, and it is our hope that through mass marketing and environmental education programs people will feel incentivized and empowered to drive an electric-powered vehicle. Each person can make a difference, so go electric and help make a difference!

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