

TITLE OF THE INVENTION
A NOVEL METHOD TO DESIGNA DYNAMO ELECTRIC VEHICLE

The following specification particularly describes the invention and the manner in which
it is to be performed

Field of the Invention

The invention generally relates to an electric vehicle and in particular to an electric vehicle that travels continuously without the necessity for intermediate battery charging implemented by the utilization of dual batteries and their charging through the utilization of a dynamo.

Background and prior art of the Invention

In general we know that the electric vehicles are invented to reduce the pollution and to start manufacturing vehicles which are environmental friendly, because during the 19th century the vehicles started to produce more toxic smokes and harmful gases. These emitted harmful gases from those periods till now, which started to damage the ozone layer and other environmental resources. So this was the main reason for the invention of electrical vehicles.

Even though after the electric vehicles invented in the 19th century, they had many drawbacks like less speed, costly and also distance traveled by the vehicle. So the electric vehicle didn't reach a place in people's heart where people need to buy it. But in some other fields the electric vehicles made some changes to the world like the invention of electric trains.

The electric trains made major changes in the railways all over the world, because the steam engines in those times produce more pollution due to burning the large amount coal and other resources. Thus the electric trains brought new changes to the people living and transportations. Engineers developed the first electric locomotives in the late 19th century. By the 1930s, they had become very popular. From the 1940s to the 1960s, electric and diesel trains replaced steam power in many countries.

But on the other side engineers worked with the electric vehicles to find some possible solution, and at the beginning of the 21st century interest in electric and

other alternative fuels vehicles has increased due to growing concern over the problems associates with hydro carbon fuels vehicles including damage the environment caused by their emissions as we said before.

By since 2010, combined sales of all electric cars and utility vans achieved 1 million units delivered globally in September 2016, and reached 3.3 million units in December 2018. As of march 2020, the Tesla model 3 is the world's all best selling plug-in electric passenger cars.

In 1959, American Motors Corporation (AMC) and Sonotone Corporation announced a joint research effort to consider producing and electric car powered by a self charging battery. AMC had a reputation for innovation in economical cars while Sonotone had technology for making sintered plate nickel-cadmium batteries that could be recharged rapidly and weighed less than traditional lead acid versions.

In 1967, AMC partnered with Gulton industries to develop a new battery based on lithium and a speed controlled designed by Victor Wonk. A nickel-cadmium battery supplied power to all electric 1969 Rambler American Station wagon.

On 31st July 1971, an electric car received the unique distinction of becoming the first manned vehicle to drive on the moon, that car was the Lunar Roving vehicle which was first deployed during the Apollo15 mission. The moon buggy was developed by Boeing and GM subsidiary Delco Electronics featured ADC drive motor in each wheel, and a pair of 36 volt silver zinc potassium hydroxide non-rechargeable batteries.

In the early 1990s, the California Air Resources Board (CARB), the Government of California, "Clean air agency", began a push for more fuel-efficient, lower emission vehicles, with the ultimate goal being a move to zero emission vehicles such as electric vehicles.

In response, automobile developed electric models, including the Chrysler TEVan, Ford Ranger EV pickup truck, GM EV1 and S10 EV pickup, Honda EV Plus hatchback, Nissan lithium-battery Altra EV miniwagon and Toyota RAV4 EV.

These were the important vehicles which brought the changes in electric vehicles and peoples idea of buying.

Another important technology that enabled modern highway capable electric cars in the lithium-ion battery, it was invented by John Goodenough, Rachid Yazami, and Akira Yoshino in the 1980s, and commercialized by Sony and Asahi Kasei in 1991. The lithium-ion battery was responsible for the development of electric vehicles capable of long distance travel. This invention of lithium battery gave many major opportunities for the electric vehicles.

The electric motorcycles also brought major changes in the industry. The power source of most electric motorcycles and scooters are powered by rechargeable lithium-ion battery. In 2017, the first vehicle in the US to use the vehicle Lithium Titanium Oxide battery non flammable battery technology is a scooter called The Expresso. This new technology charges the battery in less than 10 minutes and withstands 25000 charges.

All electric scooters and motorcycles are recharged by plugging into ordinary wall outlets, it usually takes about eight hours to recharge. Some manufactures have designed the high power level 2 chargers called CHAdeMO, which can charge the batteries up to 95% in an hour.

The current manufactures of electric motorcycles are BMW, Harley Davidson, Honda, KTM, Yamaha, Ather Energy and many more.

Summary of the Invention

The problems of the prior art is overcome in the invention by the incorporation of dual batteries namely a primary and secondary battery which are charged by a dynamo that is attached to the wheel of the vehicle. The utilization of dual batteries with one acting as a standby helps the vehicle to travel longer while the unused battery is concurrently charged through the installed dynamo. The invention further comprises ECU (Electrical Control Unit) and BMS (Battery Management System) which are used to sense the battery power and to cutoff the power supply of one

battery and to switch it over to the other battery power when the charge is low. By cutting off the power supply at a pre-determined time period, the batteries can be charged at alternative phases. Further, the dynamo that is connected to the front wheel acts as a motor till the battery is being charged and so the presence of double motors maintains the speed of the vehicle. The electric vehicle is operated in the Eco mode upon activating a single motor and in minimal energy consumption while the operation of both the motors switches the vehicle to Sports mode for achieving the maximum speed and power from both batteries.

The electric vehicle is also provided with a high security Anti-theft system for enhanced security to the vehicle which utilizes IoT technology. A GPS is fixed in the vehicle which continuously monitors and indicates the location of the vehicle. So when the vehicle is stolen the GPS sends the location to a registered mobile number. The vehicle further comprises a siren for audible indication of the vehicle theft to the surroundings. The vehicle comprises enhanced security by connecting a fuse wire with all the primary circuits of the vehicle which is activated upon emergency for the immediate and emergency halt of the vehicle. The fuse wire can be easily replaced during the service.

Statement of the Invention

- 1) An electric vehicle with in-built design for the continuous operation, enhanced safety features and power maintenance comprises
 - i) An electric motor coupled to drive the rear wheel of the vehicle and a dynamo coupled to charge the power source and drive the front wheel of the vehicle;
 - ii) A battery pack including a primary and secondary batteries for supplying the power to the vehicle wherein upon the primary battery activating the vehicle, the secondary battery is charged by the dynamo and vice versa for the continuous running of the vehicle engine;
 - iii) A Battery Management System (BMS) for periodically assessing the power factor of the said dual batteries and indicating the end user upon the power level reaching below a pre-determined threshold and transmitting the signal to the corresponding switch over circuit.

- iv) An Electrical Control Unit (ECU) for controlling the automotive electronics, security systems and for receiving the signal from the BMS upon which for switching the power source from the primary battery to the secondary battery for the non-stop vehicle operation.
 - v) A security system including the siren for delivering and alerting through an audible sound to the surrounding, a GPS tracking system for determining the co-ordinates of the current location of the vehicle and a fuse system upon which activation arrests the entire operation of the vehicle.
 - vi) A dynamo in operation with the front wheel of the said vehicle for charging the battery and for acting as a motor in the vehicle upon switching the said vehicle to the sports mode of operation.
- 2) A method of operation of an electric vehicle with in-built design for the continuous operation, enhanced safety features and power maintenance comprises the steps of
- i) Powering the electric motor of the said vehicle through a battery comprising maximum power from the battery pack.
 - ii) Periodically assessing the power level exhausted by the said battery by the BMS.
 - iii) Alerting the end user through visual indications and transmits a signal to the ECU for the corresponding actions.
 - iv) Switches the power source from the current battery to the stand by battery by the ECU for the non-stop operation of the vehicle and the continuous supply of the power to the motors.
 - v) Charges the stand by battery by the dynamo attached to the wheel hub by converting the mechanical energy to electrical energy.
 - vi) Activates the security systems including the audible alerts of sirens, tracking the geographical co-ordinates of the vehicle through the GPS and communicating them to the pre-registered mobile number and activates a fuse system for the emergency halt of the vehicle during the vehicle theft.
 - vii) Switching the operation of the electric vehicle from the Eco mode to the Sports mode by the activation of the dual motors whereby the said dynamo performs the role of the motor.

Objective of the Invention

The dynamo electric vehicle concept helps the vehicle to achieve more distance in a single charge and no need to charge the battery at a very short period of time.

This dynamo electric vehicle achieves this process by the help of two lithium-ion batteries such as primary and secondary battery, two 48V Brushless DC motor in which one motor acts as dynamo and the motor, a simple ECU, and a BMS.

These are the components we used in this concept, these components helps us to achieve this automatic charging system.

The two lithium-ion battery is kept inside a battery case, and inside the battery case we have two personal battery cases for each of the batteries. The each personal battery case hold on the battery, the case is surrounded with the cooling system.

So the working temperature of the battery can be reduced. The cooling system is bond to each battery case so we can control the temperature of each battery. This both battery cases are placed inside the single large battery case.

The 48V brushless DC motor is connected to the both lithium-ion batteries. The power from the battery runs the motor. The motor connects the wheel by a chain drive. The power from the motor is transmitted to the wheel through the chain drive and the wheel rotates thus the vehicle moves. The motor is covered by a casing to prevent from any damages and from the water.

The ECU and BMS always studies and senses the vehicle. BMS senses the battery power and helps to send the signal to the ECU. The ECU controls all the electrical equipment in the vehicle and it also receives the signal from the BMS. After receiving the signal, the ECU switches the power supply from the primary battery and secondary battery.

The IOT system helps the vehicle by providing a high security Anti-theft system and also auto ON and OFF of the vehicle. The auto ON and OFF system works with a simple transmitter and receiver system, the transmitter is placed inside the key and the receiver is fixed in the vehicle. So when the driver sits on the vehicle the transmitter sends the signal to the receiver to start the vehicle. Hence when the

driver sits and presses the start the button the vehicle starts. Only when the driver holding the key can start the vehicle, no other person can start it.

The Anti-theft system also works with the same IOT, when the vehicle is stolen the GPS inside the vehicle tracks the location and sends it to your phone. The vehicle's application gives access to all the security system. When the GPS send the location of your vehicle it asks you the permission to start the siren or to disable the fuse.

If siren is selected, the vehicle starts to make noise continuously and we can be aware where the vehicle is and also we can bring attention the people surrounded.

If the driver chooses to disable the fuse, the micro controller inside the ECU receives the signal from the driver's phone and it generates a high temperature to melt it.

The fuse has the complete connection with all the components of the vehicle, so when the fuse melts, the vehicle loses it power and it doesn't run. Thus the thief cannot take your vehicle anywhere. This fuse wire can be easily replaced.

Brief Description of the Drawings

FIG. 1: Illustrates the full construction of the Dynamo Electric Vehicle.

FIG. 2: Illustrates the Expanded view of the vehicle.

FIG. 3: Illustrates the Main Chassis of the vehicle.

FIG. 4: Illustrates the Motor and its casing.

FIG. 5: Illustrates the Batteries with the protector.

FIG. 6: Illustrates the Battery protector.

FIG. 7: Illustrates the Battery case.

FIG. 8: Illustrates the Outer Battery case.

FIG. 9: Illustrates the Front Telescopic Suspension.

FIG.10: Illustrates the Back Mono-shock Suspension.

FIG.11: Illustrates the Full Circuit System of the vehicle.

Detailed description of the Drawings

Exemplary embodiments of the present invention will be described below in more detail with reference to the accompanying drawings. The present invention may however be embodied in different forms and should not be constructed as limited to

the embodiments set for the herein. Rather, these embodiments are provided so that this disclosure will be thorough and complete and will fully convey those skilled in the art. Throughout the disclosure, like reference numerals refer to like parts of the various figures and embodiments of the present invention.

The production of electric vehicles started a major turn over to the automobile industry, the industries which have been producing vehicles with engines for more than 2 centuries, and all of a sudden after the invention of electric vehicle appeared to vanish the usage of engines in vehicles. It has been a major loss for many automobile industries, but on the other side it has a major advantage of saving the world by not polluting the air with the vehicles. So we can say manufacturing of electric vehicles is going to be a good way in our future.

But also in the invention of electric vehicle we are having some drawbacks like the distance travelled by the vehicle in a single charge, time taken for charging the battery, recharging stations are still in developing stage, and also electricity is not free so it's to better save how much we can. So as we said before this project mainly focuses on the distance traveled by the vehicle and also charging of the batteries. And by our solution we can travel more distance than the other electric vehicles.

The dynamo plays the major role in this concept and helps to charge the batteries automatically. The dynamo receives energy from the wheels, and the energy is stored in the battery. In our concept we use two batteries such as Primary battery and Secondary battery. So the usage of two batteries helps the vehicle to travel more distance, and also the power can be regenerated using the dynamo. A simple ECU (Electrical Control UNIT) and BMS (Battery Management System) is used to sense the battery power and to cutoff the power supply of one battery to another battery power when the charge is low. By cutting off the power supply at a period of time, the batteries can be charged at an alternative period.

The first procedure when we start a trip is, we charge the vehicle till the battery is full, as the same we do here but in this concept we charge both the primary and secondary batteries. After the battery is fully charged we start the trip. At the first the

vehicle runs with power from the primary battery and the secondary battery stays idle. The power of secondary stays in the battery till the primary battery reduces.

When the primary battery charge reduces to 20%, the BMS which is programmed to sense the battery power senses the power that has reduced to 20% and it sends a signal to the ECU. The ECU shows an indication to us that the battery percentage is reduced to 20% and the driver will have awareness about it. And the ECU helps to cut off the battery power supply automatically from primary battery to secondary battery. This process can be achieved by programming the process into the ECU.

So now the power supply has changed from primary battery to secondary battery, thus the vehicle gets the power from the secondary battery and the vehicles runs without any interruption. The main concept works here, now the primary battery is idle. But we use the dynamo to recharge the primary battery by not leaving the used battery in idle position.

The primary is getting recharged by the use of dynamo. The dynamo is fixed with the wheel hub of the vehicle, so the energy loss can reduce by the dynamo is reduced. In general the dynamo is placed at the circumference of the wheel, but here we fix the dynamo with the wheel hub which is more efficient to charge the battery.

The dynamo generates the power from the rotation of the wheel and it supplies it to the empty battery. The vehicle running with the secondary battery helps the dynamo to complete this process.

So the dynamo charges the primary battery, at the same time the secondary battery loses its charge and when the secondary battery charge reaches to 20% same process executes. By that time, the primary battery will at least reach to battery percentage up to 50% to 60%, and the vehicle can achieve more distance with that amount of charge. The BMS again senses the battery power and send a signal to the ECU. And the ECU cutoff the battery supply from secondary battery to the primary battery. Now the vehicle runs with the primary battery and the secondary battery starts the charge by using a dynamo. And this process continues till we reach the target distance.

By the mean time dynamo acts as a motor till it is required to charge the battery. And this motor (dynamo) is fixed in the front wheel, so by the help of two motors we can achieve more speed. The dynamo turns into a motor when the vehicle is switched to Sports mode. We have two sets mode in which the vehicle can run, one is the Eco mode and the other is the Sports mode. The vehicle in general will be in the Eco mode, in the Eco mode we can have normal drive and the energy used by the vehicle is less so it is said to be Eco mode. The sports mode uses the both the motors so the vehicle can achieve the maximum speed, but the sports mode requires more battery due to the working of two batteries at the same time.

We also have a high security Anti-theft system in our vehicle which helps us to prevent the vehicle from being stolen. Here an IOT technology is used for the working of this Anti-theft system and also for auto ON and OFF of the vehicle. A GPS is fixed in the vehicle which continuously keeps showing the location of the vehicle. So when the vehicle is stolen the GPS sends the location to your mobile phone. And we have also fixed a siren so we can bring attention to the surroundings. To be more secured we have a fuse wire which connects with all components in the vehicle, so when the thief tries to steal the vehicle, the fuse wire melts down and the vehicle cannot run without any components. The fuse wire can be easily replaced during the service.

FIG.1: Illustrates the full construction of the Dynamo Electric Vehicle.

In FIG: 1, we get a complete idea of the assembled vehicle. The FIG: 1 shows the design we used in this vehicle is a brand new to the two wheeler electric vehicles. The arrangement of the parts to the vehicle is a very easy job to do.

We also know, in other electric vehicles the battery has to be removed from the vehicle to be charged separately or when the battery is completely expired, the dismantling of the battery is a tough job to do. So we made it easy for dismantling and assembly of the battery to the vehicle. Fig: 2 show the complete idea of that procedure.

FIG. 2: Illustrates the Expanded view of the vehicle.

Here in FIG: 2, we can see the expanded view of the vehicle. We can also spot out the parts like motor, battery, tank, hood, dynamo and other parts. In this view we get an idea about where the components and parts are mainly going to install in the vehicle. The removal and installing the battery and other parts is comparatively easy in our vehicle. So during the maintenance and service the job will be easy job.

The battery is highly protected by the help two battery cases. One of the cases is fixed with the batteries, and it acts as battery protector and also as cooling system for the battery system. Both the batteries can be removed separately if any service is needed and both the batteries have separate cooling system. Now this battery case and protector is fixed inside a large battery case. This outer battery case has a large space capacity so the batteries and other electrical systems are build in it.

So we can see the batteries highly protected and maintained correctly.

Above these batteries and outer battery case, we have the Hood and Tank. We keep our things and belongings in the tank. The tank also has high space capacity to store many things.

We can also see the motor and its casing; the motor is fixed next to the battery system. The motor has an automatic gear system which is connected to the motor output shaft and it is completed surrounded by the motor casing. The gear system works as per the modes in the vehicle and according to the speed of the vehicle.

As we said before, the dynamo plays the major role in this concept. The dynamo also acts as motor when it is shifted to sports mode.

So the dynamo/motor is fixed in the front wheel. We use hub motor in the front so when the dynamo generates the power and sends to the battery with less energy loss. Thus the power to battery can be sent easily and can be recharged quickly.

All these components are installed and assembled in the chassis of the vehicle, the FIG. 3, explains clearly about the frame work of the vehicle.

FIG. 3: Illustrates the Main Chassis of the vehicle.

We all know that the chassis is the main frame of the vehicle in which all the parts and components are installed to it. The FIG. 3 shows us the main frame of the vehicle. A chassis is one of the most important components of a vehicle, without which the car or bike would have no structure

The chassis is the load bearing frame work of an artificial object, which structurally support the object in its construction and function. Here the chassis holds our battery system, motor system, handlebar, suspensions, wheels and other small components.

FIG. 4: Illustrates the Motor and its casing.

In FIG. 4 we can see the motor and its casing, inside the casing we have the Brushless DC motor and gear system. To protect this system we covered the motor and gear with the casing.

The motor generally gets the power from the battery by the power from the battery the motor starts to rotate. The power from the motor is transferred to the wheels through the chain drive. The gear system helps vehicle to achieve high speed and this system automatically engages when it is shifted to sports mode.

FIG. 5: Illustrates the Batteries with the protector.

In this FIG. 5, as we said before the batteries are highly protected with the protector and battery cases.

The batteries can be separately removed from the protector in case of any service or replacing must be done. In FIG. 5 after the batteries are replaced to the protector, the batteries gets attached to the protector by the help of a magnetic clamp. This magnetic clamp is placed at the bottom of the battery protector, and there is another clamp at the bottom of battery case, so when the batteries are placed in the protector the magnetic clamps holds the batteries together.

FIG. 6: Illustrates the Battery protector.

The FIG. 6 shows only the protector and how it is fixed to the batteries. We can also see how it surrounds the batteries and holds it firmly in all four directions, so in case of high vibrations or shocks the protector holds the batteries firmly without any damages to the batteries.

Here in FIG. 6 the battery protector also acts as the cooling system for the batteries. The cooling coils are planted inside the walls of the protector, the coolant passes through the coils and cools down the batteries.

FIG. 7: Illustrates the Battery case.

In FIG. 7, we see the inner case of the battery. The inner battery case holds the battery and its cells in it. The inner battery cases mainly prevent the plates of a cell from touching and short-circuiting. It also prevents batteries from other environmental elements like water and dust.

These battery cases help us to remove them from the battery protector easily. At the bottom of the battery case the magnetic clamps hold to the battery protector clamp, so there will be no mild movements to the battery.

FIG. 8: Illustrates the Outer Battery case.

Here in FIG. 8 we see the outer battery case which holds the batteries and other electrical equipments in it. It mainly holds the batteries and its protector at the bottom of the outer case.

Then it also holds the electronic systems like Anti-theft system and other IOT systems of the vehicle. There is an air-cooled radiator at the sides of the outer battery case, so the components inside the case are cooled properly.

FIG. 9: Illustrates the Front Telescopic Suspension.

In FIG. 9, we can see the front telescopic suspension of the vehicle. Here we are using the upside down telescopic suspension so when the vehicle travels in a high speed the front load of the vehicle is increased due to unwanted and useless load. Due to this load the movement of the front wheel is difficult, that the reason we use the upside down telescopic suspension.

The inverted telescopic suspension balances the load and gives us the correct cushioning effect. Most of the high performance vehicle uses this suspension, so the driver gets a perfect control of the vehicle. The performance between the telescopic suspension and upside down telescopic suspension may differ, but the working procedures of the suspension are the same.

FIG.10: Illustrates the Back Mono-shock Suspension.

Here in FIG. 10, we can see the back mono suspension of the vehicle, the mono shock suspension connects the rear swing arm to the motorcycle's frame. The mono-shocks are said to eliminate torque to the swing arm and provide more consistent handling and braking.

The mono-shock suspensions are better in highway stability and allow higher suspension and swingarm travel. The mono-shock also improves the handling of the motorbike while going over bad roads as all the force is focused at one point load. Just because of its position the mono suspension has a serious advantage, it is placed ahead of the rear axle at the centre of the bike.

FIG.11: Illustrates the Full Circuit System of the vehicle.

The FIG. 11 shows the complete circuit diagram of the vehicle. This wiring diagram gives us the complete idea of the components and its arrangements to the vehicle. Mainly we can see how the components and equipments are connected together.

So we know that our concept have two batteries and we can see both the primary and secondary battery at the centre of the diagram. Next near to the batteries we have our BMS (Battery Management System), both the batteries have a separate BMS for personal monitoring.

The BMS is a electrical system that manages a rechargeable battery, such as protecting the battery, monitoring its status, calculating secondary data, report that data controlling its environment authenticating it or balancing it. The BMS monitors the battery's voltage, temperature, and state of charge, state of safety, coolant flow, and current in and out of the battery. The BMS may protect its battery by preventing it from operating outside. So we can see the BMS is the major role played in safe guarding the batteries. The works done by the BMS is controlled and programmed by the ECU; we can see the output from the ECU connects to the both BMS.

The ECU is the major controlling device for all the components in this circuit. An ECU (Electrical Control Unit) is any embedded system in automotive electronics that controls one or more of the electrical systems or sub systems in a vehicle. So as said it controls all the electrical system, it controls the BMS, 3 pole power contactor, and the SFU (Switch Fuse Unit). The ECU and the BMS will be programmed that, when the primary battery charge decreases to 20% the BMS send the signal to the ECU and the ECU switch the main circuit secondary battery by the help of 3 pole power contactor. And we can also see that ECU connects the BMS and the 3 pole power contactor.

Now the external charging system functions when the external DC plug is plugged in the DC socket of the vehicle. The external power recharges the batteries when the vehicle is at rest or parked at home. Both the batteries recharge one at a time, first the primary battery fully charges and then the secondary battery charges. The sequential charging is done by another contactor which is placed between the DC socket and the battery.

Now we come to the dynamo charging system, we can see that dynamo is placed at the left side of the diagram. Here when the dynamo rotates and generates current, the amplifier and the fast charger above the dynamo helps to boost up the charge and also to charge faster.

In between the fast charger and the batteries we have the 3 pole power contactor, the contactor helps to charge the batteries separately.

We can see in the diagram the output of the batteries is connected to the motor controller and the motor, so when the power from the battery is sent to motor, and the motor starts to rotate. Now the speed of the motor is controlled by the throttle. The output of the throttle is connected to the motor controller, and the motor controller directs the motor.

And between the motor controller and the batteries there is the SFU (Switch Fuse Unit). This fuse unit is our Anti-theft system which we explained above in the summary. This SFU connects to both batteries and ECU. So when the driver uses the vehicle's application on his mobile to disable the vehicle, the ECU receives the signal and sends the signal to BMS to command the batteries to send a maximum amount current in which the fuse breaks and the motor loses its power thus the vehicle stops.

1. We believe that by using our concept we can travel extra distance than the other electric vehicles, which will be very useful in upcoming electric vehicles. The people while driving in highways have many ideas during their trip. By single charge they can travel only short and calculated distance otherwise they have to search for the recharge stations and have to wait till the battery charges. But we use two batteries so we can travel 2 times greater distance.
2. We can also charge the battery while driving so no need to wait at the recharge stations, the car can be charged automatically.
3. The cooling system provided in our vehicle is more efficient than the other vehicles. The vehicle generates heat while driving for very long period of time, the more usage of motor and the batteries are the main reasons of heat. So we are handling the heat of the batteries by keeping them in different personal battery cases which is rooted and surrounded by cooling coils. Inside these coils we pass the coolant which cools the batteries. The motor can be cooled by using the air cooled radiator.
4. The storage facility in our vehicle is more, when compared to other electric bikes we have provided more space to keep the things and belongings.

Generally in electric two wheelers the storage space is very less; hence to solve this problem we have created a separate space for storing.

5. We are also bringing an auto ON and OFF system to our vehicle. This system gives access only to the person who carries the key; other persons cannot start the vehicle. This is one of our security systems, and there are other security systems like Anti-theft system. These security system works on with an IOT.
6. The Anti-theft systems save the vehicle and help the vehicle not being stolen. When the vehicle is stolen, the GPS inside the vehicle tracks the location of the vehicle and sends it to your phone. And the siren creates a loud noise continuously to create awareness to the surroundings.
7. To be more secure, we have a fuse wire which connects with all the components and equipments in the vehicle. When the thief tries to steal the vehicle we can send a signal to the micro controller and it creates a high temperature to the fuse wire. The high temperature melts the wire and the components don't work in the vehicle, so the vehicle cannot move anywhere. Thus we shutdown the whole vehicle. And the wire can be easily replaced during the service.

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