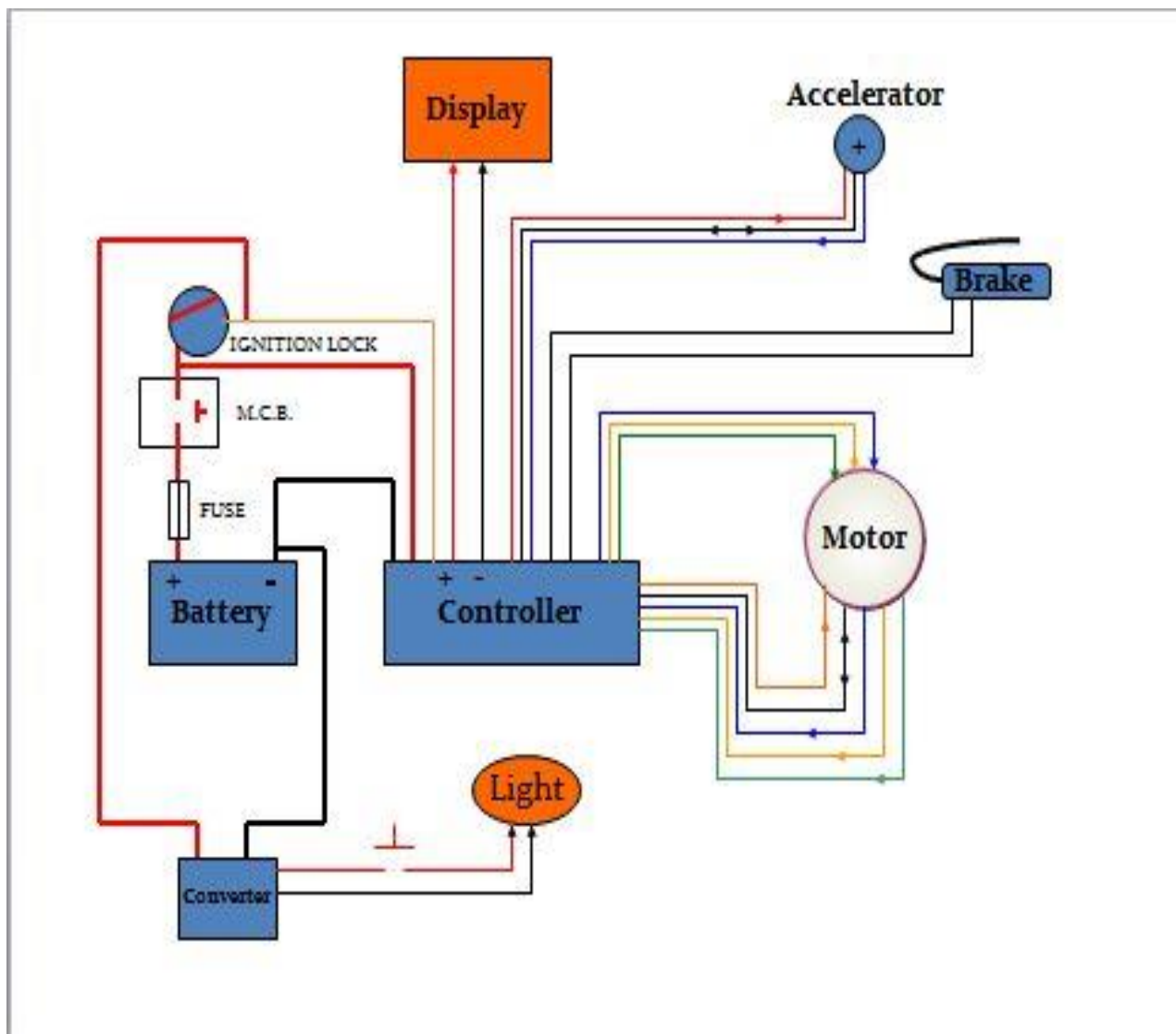


REPORT ON CONTROLLER

DEFINITION:

A motor controller is a device or group of devices that serves to govern in some predetermined manner the performance of an electric motor. A motor controller might include a manual or automatic means of starting and stopping the motor, selecting forward or reverse rotation, selecting and regulating the speed, regulating the speed, regulating or limiting the torque, and protecting against overloads and faults.

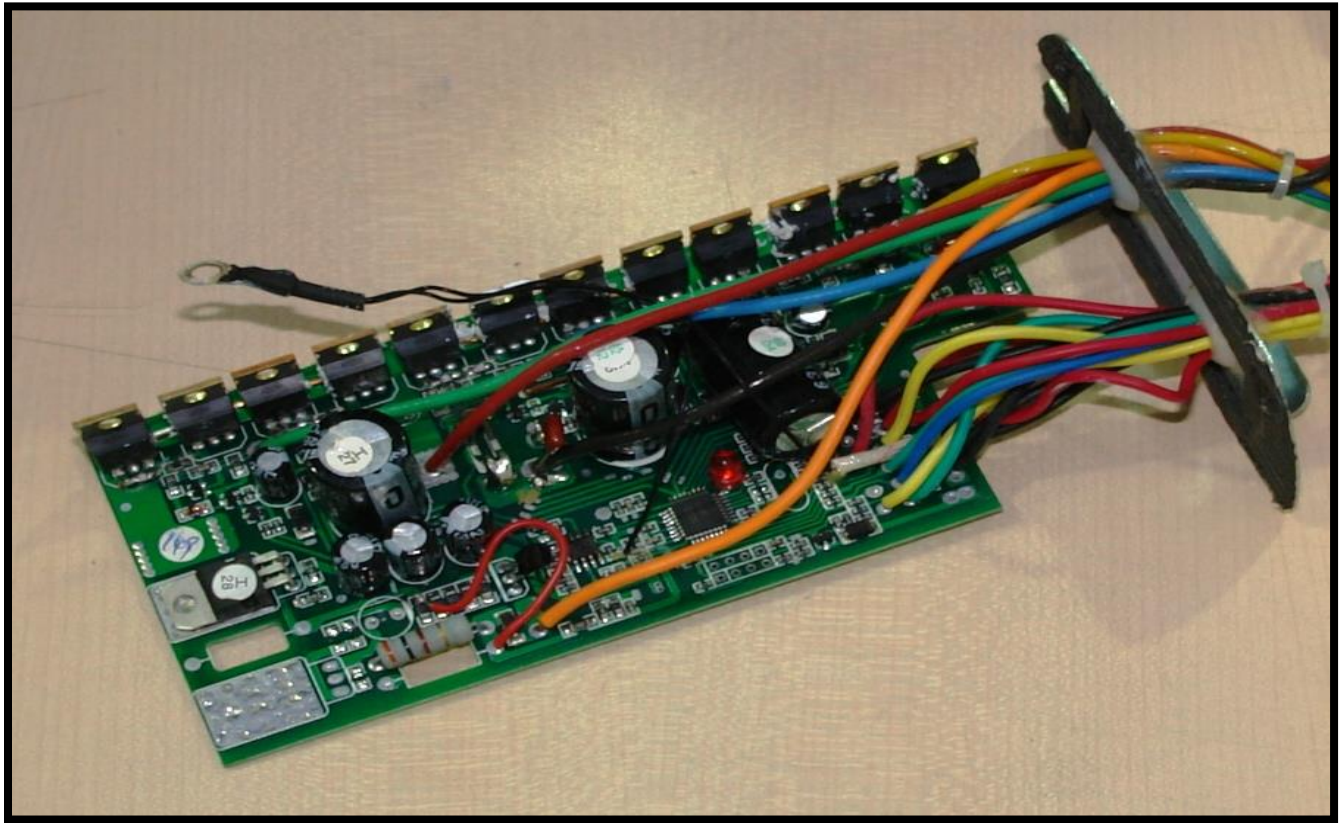
BLOCK DIAGRAM:



ABOUT CONTROLLER:

It is the brain of the vehicle. It is a multi-functioning device. On receiving battery voltage it activates. It provides signal voltage to all major electronic components like accelerator, brake, motor etc. it uses hall effect sensors to direct the rotor's position. The controller consists of the following electronic components.

- ✓ Fuse
- ✓ Capacitor
- ✓ Choke
- ✓ Diode
- ✓ Resistor
- ✓ MOSFET
- ✓ Transformer
- ✓ Opto coupler
- ✓ Schottky diode
- ✓ Transistor
- ✓ LED
- ✓ Zener diode



FUSE:

It is a type of low resistance resistor that acts as a sacrificial device to provide over current protection, of either the load or source circuit. Its essential component is a metal wire that melts when too much current flows through it, interrupting the circuit that connects. Fuses are alternative to circuit breakers.

CAPACITOR:

A capacitor is a passive two terminal electrical component used to store energy electrostatically in an electric field. It is also used for filtering purposes. Its unit is farad. Here it ranges from microfarad to farads.

CHOKER:

It is an inductor used to block higher-frequency AC current in an electric circuit, while allowing a lower frequency or DC current to pass. A choke usually consists of a coil of insulated wire often wound on a magnetic core, the choke's impedance increases with frequency. Its low electrical resistance allows both AC and DC to pass with little power loss, but it can limit the amount of AC passing through it due to its reactance.

DIODE:

It is a two terminal electronic component with asymmetric conductance. It has low resistance to current in one direction, and highly resistance in the other. It has two terminals anode and cathode.

RESISTOR:

A resistor is a passive two terminal electrical component that implements electrical resistance as a circuit element. Resistors act to reduce current flow and at the same time act to lower voltage levels within circuits. Its unit is ohm. It ranges from ohm to mega ohms.

MOSFET:

Metal oxide silicon field effect transistor is a type of transistor used for amplifying or switching electronic signals. It has three terminals GATE (G), DRAIN (D), SOURCE (S). here 12 MOSFET's are used. It is a unipolar device and voltage control device.

TRANSFORMER:

It consists of two sides primary and secondary. It transfers electrical energy from one circuit to another through inductively coupled electrical conductors.

OPTO COUPLER:

To provide path to transfer a signal between elements of a circuit.

SCHOTTKY DIODE:

It is a semiconductor diode with a low forward voltage drop and a very fast switching action.

TRANSISTOR:

To amplify or to switch electronic signals.

LED:

To emits light when an electric current is applied in the forward direction of the device.

ZENER DIODE:

To permit current in the forward direction like a normal diode, but also in the reverse direction if the voltage is larger than the break down voltage.

WORKING:

The controller On receiving the accelerator signal, the controller supplies power from battery to motor. Because the controller must direct the motor's rotor rotation, the controller needs some means of determining the rotor's position. There by using hall effect sensors we will be able to directly measure the rotor's position. The controller contains 3 bi-directional drivers to drive high-current DC power, which are controlled by a logic circuit. Position information can be gotten by hall effect sensors that detect the rotor magnet position. By pressing the accelerator, the hall sensor mounted inside the accelerator sends signal to controller. The controller sends power to the motor proportional to the pressing force of the accelerator. The speedometer shows indication proportional to the pressing force of the accelerator. Brakes contains electronics sensors in the form of pedal. It receives signals from controller. On applying brake the signal is sensed by controller and controller stop sending power to motor. It saves power when frequent braking situation arises.

AC PULSE IN CASE OF DC OUTPUT	
	MOTOR SYSTEM
20 VOLTS.	