GP1006	Design and Development of an Electric Vehicle Range Extender (EV-X)		
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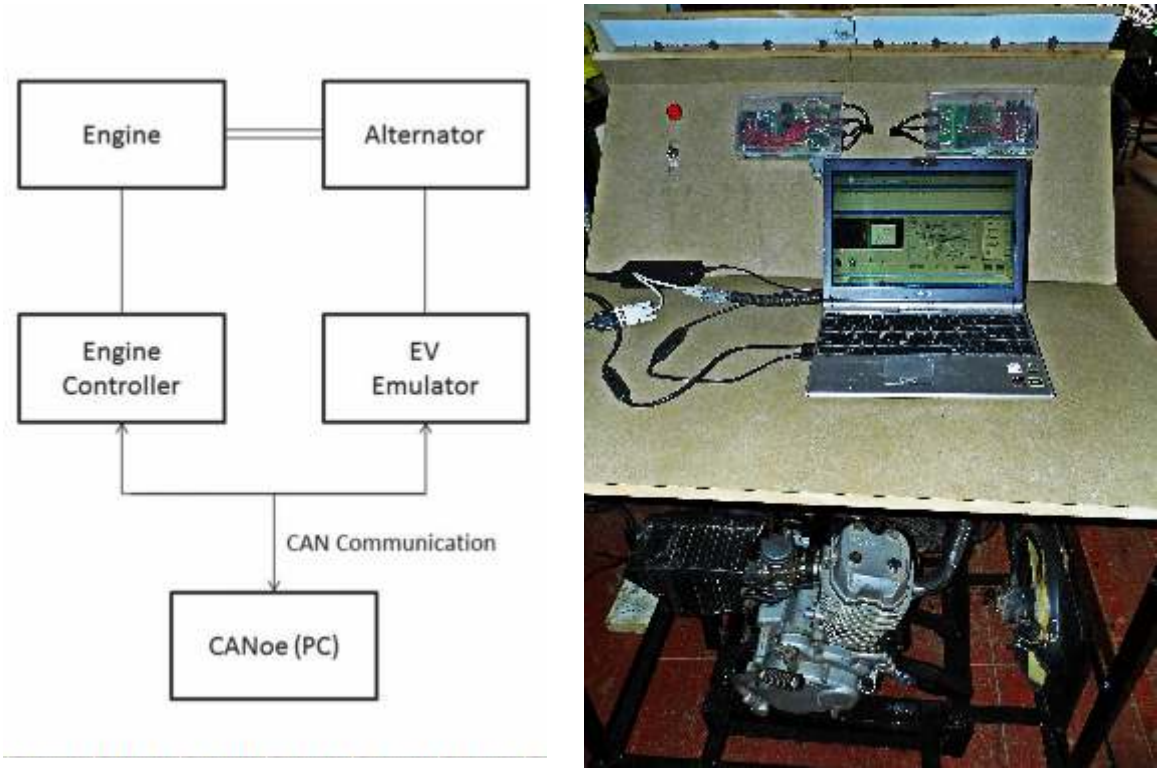
In future, the IC engine vehicles will succumb to imminent fuel crisis and environmental pollution. Most research institutes and automobile manufacturers are searching for an alternate propulsion option which can replace IC engines. Amongst present alternative propulsion systems like fuel cells, Electric Vehicles, steam engine vehicles and pressurized air vehicles only Electric Vehicles have promising potential to replace IC engines. However Electric Vehicles face limitations such as range, power and speed compared to IC engines making them less desirable in present day scenario. To overcome these limitations of EVs some automobile manufacturers have introduced Hybrid Electric Vehicles (HEVs) and Range Extenders for the Electric Vehicles. Compared to HEVs, Range Extenders are more desirable which is a combination of a downsized engine coupled with a generator charging the battery while the vehicle is on the move, resulting in no power lag using a small battery bank in the EV.

In the current project, a control strategy for a downsized Range Extender prototype has been designed and developed for its optimal operation. In this process, a 150 cc IC engine is coupled to a 1 kW alternator to charge a 36 Ah lead acid battery. An engine controller and EV emulator is designed and developed to control the IC engine and to simulate an Electric Vehicle respectively. A CAN network is established for communication between the engine controller and EV emulator. Vector CANoe is used as the Human Machine Interface for simulation, generation of test cases and verification of the designed strategy.



EV-X block diagram and implementation