

# E-HIGHWAY

[ ISNS GREEN ZONAL AREA FOR SMART GREED POWER GENERATION WITH CHARGEABLE ELECTRONIC ROOFWAY]

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## ABSTRACT

*The European Network of Transmission System Operators for Electricity has started to look beyond the scope of the third package of legislation on the EU internal electricity and gas markets and especially to look beyond the horizon of the Ten-Year Network Development Plan. A comprehensive study roadmap towards a “Modular Development Plan on pan-European Electrifying Highways System 2050” The study work on “electrifying HIGHWAY 2050” is expected to be realized with broad involvement and direct participation of external stakeholders such as universities, institutes, manufacturers, NGOs and several stakeholder associations and to produce a valuable basis for a dedicated European Commission Master Plan on Electricity Highways implementation.[1]*

*As it is not always possible to transfer more freight traffic to the rail, this traffic will have to be carried by trucks that combine reliable service with minimum environmental impact. The electrifying Highway is twice as efficient as internal combustion engines. The Siemens innovation supplies trucks with power from an overhead contact line. This means that not only is energy consumption cut in half but also local air pollution is reduced.*

*The e-highway concept is particularly effective from an environmental and economic point of view on heavily used and relatively short truck routes, e.g. between ports, industrial estates, freight transport centers and central transshipment terminals. The aim is to eliminate local emissions completely, reduce the use of fossil fuels, cut operating costs and establish a basis for using the system on a commercial basis in the future.*

**Keyword :** PIC16F877A, pantograph , Distributed power generation, system analysis and design, wind&solar power generation etc

## 1. Introduction:

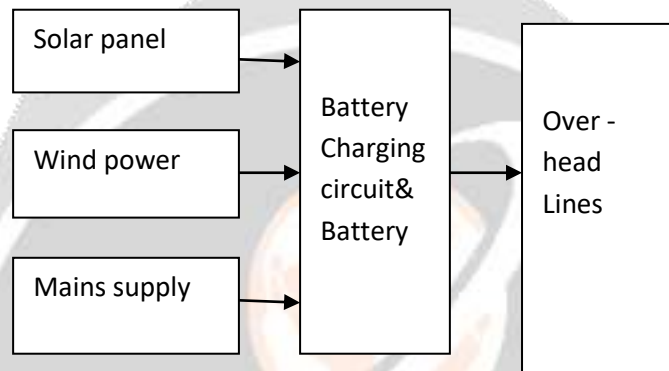
Highways are an essential component of our society. They are critical to quality of life and to local and national economies. At the same time, by absorbing the latest technological advances in computing and networking, highways are undergoing a transformation to a large system of systems, whose control and management are becoming orders of magnitude more complex. In this project, we argue for an inter-disciplinary approach to highway traffic management that combines transportation, computational, and social perspectives. The European Network of Transmission System Operators for Electricity (ENTSO-E) has started to look beyond the scope of the third package of legislation on the EU internal electricity and gas markets and especially to look beyond the horizon of the Ten-Year Network Development Plan (TYNDP). A comprehensive study roadmap towards a “Modular Development Plan on pan-European Electrifying Highways System 2050” The study work on MoDPEHS (project name: “electrifying HIGHWAY 2050”) is expected to be realized until end of 2014 with broad involvement and direct participation of external stakeholders such as universities,

institutes, manufacturers, NGOs and several stakeholder associations and to produce a valuable basis for a dedicated European Commission Master Plan on Electricity Highways implementation.[2]

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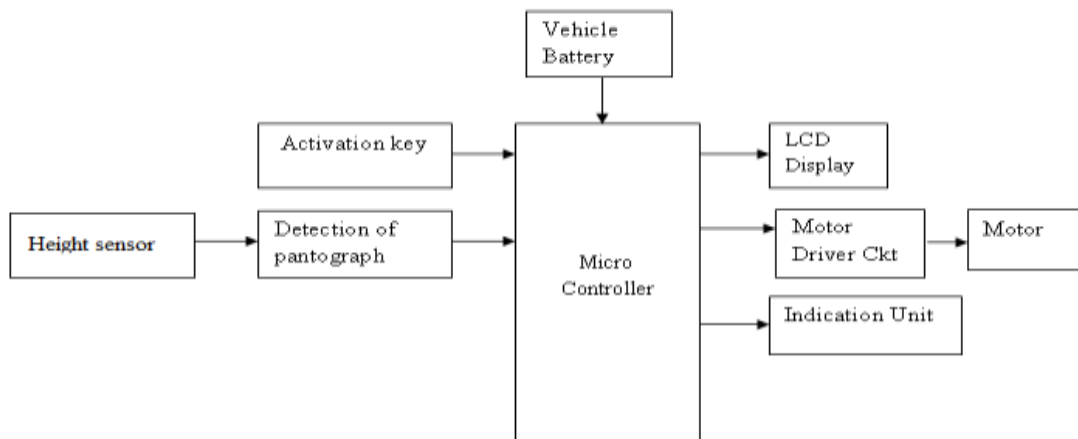
**2. SYSTEM OVERVIEW:**

**2.1 Road side unit:**



**Fig-2.1** Road side unit

**2.2 Vehical unit**



**Fig-2.2** Vehical unit

**2.3Block diagram description:**

**2.3.1 Height sensor:**

This sensor is used to detect height of vehicle & transfer the power through pantograph. The pantograph is a popular device for collecting power for overhead line.

**2.3.2 LCD display:**

It is used to display information.

**2.3.3 Motor driver circuit:**

It is used to drive DC Motor.

**2.3.4 Motor:**

There are 3 stepper motors are used 2 for vehicle for demo purpose and 1 for controlling or driving pantograph.

**2.3.5 Battery charging circuit & battery:**

Batteries store energy being produced by given generating source and when this source is unavailable this energy can be used by loads. The inclusion of storage in any energy generating system will increase the availability of the energy.

**2.3.6 Solar panel:**

By using photovoltaic materials to convert the radiant energy directly into electrical.

**2.3.7 Overhead lines:**

It is also referred as ropeways which is used as a transmission line and pantograph is connected to it.

**2.3.8 Microcontroller:**

The microcontroller is the heart of the system. The PIC16F877A microcontroller is used for the system. It is 40 pin IC with 5 ports. The pantograph and height sensors are connected as its input and LCD display, motor driver circuit, motor, LED as an output.

**3. CONCLUSIONS**

The paper provides important contribution for preparing long term transmission development. We are trying to develop a electronics highway including power generation & consumption power source placement, power flow calculation etc.

The energy which is used to generate the power, is supplied from nature like wind, solar. This is free and abundant. Because of use of natural energy source the emission of harmful gases such as CO<sub>2</sub>, SO<sub>2</sub> that are produced by the fuel vehicle.

**4. ACKNOWLEDGEMENT**

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**5. REFERENCES**

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