Name :- Nikhil Kumar Roll no :- 180655

course code :- CS 7401

Date __/__/__

Page _____

IOT Assignment :- 2

Q 1) Smart Home :-

Ans ⇒ Smart Meters :-

- Provide the smart grid interface between you and your energy providers.
- Operate digitally
- Allow for automated and complex transfers of information
- Help you cut your energy costs.
- Give greater information about how much electricity is being consumed.

→ Home Energy Management Systems.

- Allows to view on computer or hand-held device, connected to a Home Automation Network (HAN)
- Allows to track energy use in details
- Shows the energy impact of various appliances while switching the devices on and off.

→ Smart Appliances will be networked and operated

- Certain appliances will be networked together, to be accessed and operated through EMS, remotely
- Smart appliances will also be able to respond to signals from energy provider to avoid using energy during times of peak demand (though this is more complicated than a simple on and off switch)

Name :- Nilesh Kumar Roll no :- 1806055

Course code :- CS7401.

B.tech :- (CSE-1)

Date / /

Page

→ Home power generation :-

Rooftop solar electric systems

Small wind turbines

Home fuel cell systems, which produce heat and power from natural gas.

- The smart grid will effectively connect all these mini-power generating systems to the grid.

→ Renewable Energy :-

Net Metering

- Net metering involves the use of a meter that can record the power flow to and back into the grid as a credit.
- Consumers with Roof-top solar power systems can now accumulate credits for excess power generation - that is, power fed into the grid from home power systems - on a monthly basis.
- Excess power at the end of the → will paid by the utility.
- The smart grid will enable enhancements to these net metering programs, for instance.
- power generated during peak power demand → utility might pay more.

Name :- Nikhil Kumar
Roll no :- 1806055

Branch :- CSE 1
Course code :- CS 301

Date / /
Page

Demand Response :-

- Consumers will be compensated for taking off their load during times of peak demand.
- They can do so using their smart meters and Home Energy Management systems.
- Integrate the power supply from solar and wind plants.
- Grid operators need tools to reduce power demand quickly when wind or solar power dips.
- Energy storage will help to smooth out the variability in wind and solar resources, making them easier to use.

Name :- Nikhil Kumar course code :- CS 7401

Roll no :- 1806055

Branch :- CSE

Date __/__/__

Page _____

→ PLUG-IN Electric Vehicle :-

in the future, PEVs may play an important part in balancing the energy on the grid by serving as distributed sources of stored energy a concept called "vehicle to grid - battery in motion".

By drawing on a multitude of batteries plugged into the smart grid throughout its service territory, a utility can potentially inject extra power into the grid during critical peak times. avoiding brownouts and rolling blackouts.

Enabling a charging infrastructure for PEVs with the smart grid, PEVs can identify themselves to the charging station when they are plugged in and the electricity used can be automatically billed to the owner's account.

Smart grid technologies using sophisticated software will assure that plug-in EV up still fully charged, and ready to go when you need it.

And you will still be able to demand an immediate recharge when you need it.