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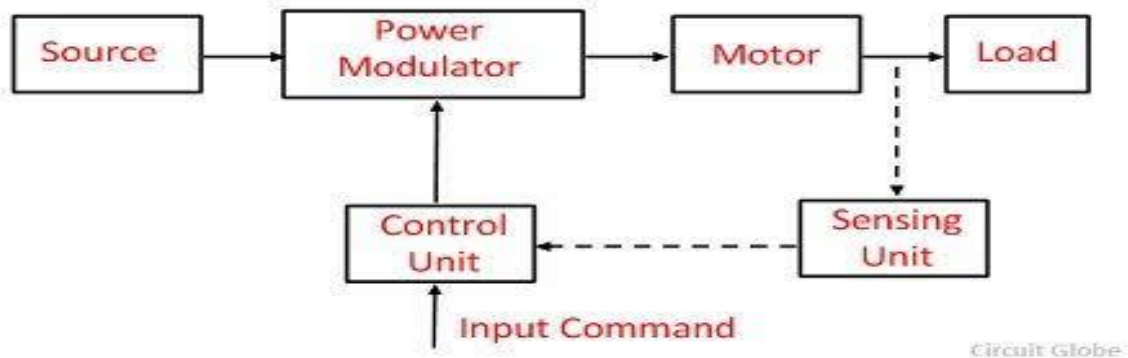
Subject- ED

Semester-B-Tech 7th Sem

Electrical drive

The system is used for controlling the motion of an electrical machine such type of system is called an electrical drive .in other words the drive which uses the electrical motor is called electrical drive. The electrical drive uses any of the prime mover like diesel or petrol engine, gas, or steam turbine, steam engine, hydraulic motors are electrical motors as a primary source of energy. the prime movers supply the mechanical energy to the drive for motion control.

Block diagram of electrical drive



Parts of electrical drive

Their parts are explained below in details.

Power modulator: -

- The power modulator regulates the output power of the source.
- It contains the power from source to the motor in such a manner that motor transmits the speed torque characteristics required by the load, during the transient operation like starting, braking and speed reversing the excessive current drawn from the source and motor current.
- The power modulator converts the energy according to the requirement of the motor e.g. if the source is DC and an induction motor is used then the power modulator convert DC into AC.
- It is also select the mode of operation of the motor i.e. motoring or braking.

Control unit :-

- The control unit control the power modulator which operates at small voltage and power levels.
- The control unit also operate the power modulator as desired.
- It also generates the commands for the protection of power modulator and motor, an input command signals which adjust the operating points of the drive from the input to the control unit.

Sensing unit:-

- It senses the certain drive parameters like motor current and speed.
- It mainly required either for protection or for closed loop operation.

Merits: -

- The electrical drive has very large range of torque, speed and power.
- The electric drive is free from pollution.
- The drive can easily be started and it does not require any refueling.
- Efficiency of the drive is high because fewer losses occur on it.

Demerits: -

- The application of drive is limited because it cannot use in a place where the power supply is not available.
- It has poor dynamic response.
- The initial cost of the system is high.
- It can cause noise pollution.

Application: -

- It is used a large no of industrial and domestic application like rolling mills, paper machine, textile mills , Machine tools , Fan , pump etc.

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