



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)



COIMBATORE-35

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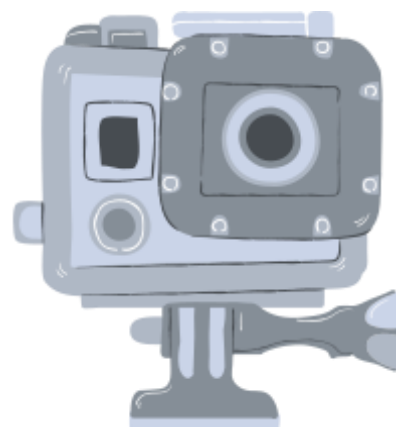
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

**COURSE NAME: 19EET207/ SYNCHRONOUS AND INDUCTION
MACHINES**

II YEAR / IV SEMESTER

Unit 5 – SPECIAL MACHINES

Topic 12: Servo motor





GUESS THE TOPIC NAME...





Servo motor

- A servo is a small device which has an output shaft which positions on coded signal. It is a rotary or linear actuator that allows for precise control of angular or linear position, velocity and acceleration.
- The servo motor is which respond to signal abruptly and accelerate the load quickly are called servo motor
- DC Servomotor
- AC Servomotor



DC Servomotor



- DC Servomotors are separately excited dc motor or permanent magnet dc motor.
- They are controlled by armature voltage
- The armature is designed to have large resistance so that the torque-speed characteristics are linear and have a large negative slope.
- DC servo motor provides very accurate and also fast respond to start or stop command signals due to the low armature inductive reactance. DC servo motors are used in similar equipments and computerized numerically controlled machines



Construction





AC servo motor

- AC servo motor is an AC motor that includes encoder is used with controllers for giving closed loop control and feedback.
- This motor can be placed to high accuracy and also controlled precisely as compulsory for the applications.
- Frequently these motors have higher designs of tolerance or better bearings and some simple designs also use higher voltages in order to accomplish greater torque.





Comparision



AC Servomotor

- Low power output of about 0.5W to 100W.
- Efficiency is less.
- Maintenance is less
- Stability problems are less.
- No radio frequency noise
- Compare to DC servomotor it is relatively stable and smooth operation.

DC Servomotor

- Deliver high power output.
- High efficiency.
- Frequent maintenance required .
- More problems of stability .
- Brushes produce RF noise
- It's a noisy operation



Applications

- Computers, toys, CD/DVD players
- Robotics
- Start, move and stop conveyor belts carrying the product along with many stages.
- For instance, product labeling, bottling and packaging
- Built into the camera to correct a lens of the camera to improve out of focus images.
- Automatic door openers to control the door in public places like supermarkets, hospitals and theatres.
- Solar tracking system to correct the angle of the panel so that each solar panel stays to face the sun



SUMMARY

Advantages

- High output power relative to motor size and power
- Resonance and vibration free operation
- High efficiency
- High speed operation is possible



KEEP
LEARNING..
Thank u

SEE YOU IN NEXT CLASS