03. Simple DC motors -: uses a permanent magnet and electromagnetic induction to rotate, commonly used where high starting torque is required and need speed variation

BLDC motors -: this is the brush less direct current motor, it has no brushes having three terminals from where we supply the current and the ground voltage. It is used for high speed and torque. Especially where continuous rotation is required.

Stepper motors -: it is also a brush less dc motor, and it is used where more precise position control is required. It divides the full rotation in the number of steps to catch the desired position.

AC motors -: these are the motors that use AC current for the rotation. Having same mechanism as a DC motor but uses AC current.

02. https://www.youtube.com/watch?v=-m1oKuFkSTE SCARA robot RRP is mainly used for pick and place operations having 3 degrees of freedom. And the Z axis of rotation are parallel to each other.
https://www.youtube.com/shorts/ruBjUyQ2OTY PUMA robot RRR is mainly used for heavy duty work in the industries.

https://www.youtube.com/watch?v=tF4DML7FIWk humanoid robot (atlas) and it is one of the most advanced humanoid robot. It have high level of controls and intelligence which enables it to do various tasks

https://www.youtube.com/watch?v=SZ8L5-gecho this are the UAV (unarmed aerial vehicle) and they are used for various purposes, one of them is are used by militaries as a drone and attack the enemies.

https://www.youtube.com/watch?v=Kr68oZ-BFoU AUV (Autonomous underwater vehicle) this are drones which are used for underwater researchers. They are capable of doing work underwater for a long time and easily go into the large depth.

https://www.youtube.com/watch?v=1CDF0jNTCm4 ATRO this robots are mainly used for pick and place tasks.