In Robotics, we use geared motors when a high amount of torque is required. A gear assembly is joined to a DC motor to create a geared motor. The gear assembly aids in lowering speed and raising the torque.

Types of Gears:

- **Worm Gear**:
    1. It has a high-speed reduction.
    2. The operation is smooth and silent.
    3. Compared to other types of gearboxes, the efficiency is low. They have high power losses.
    4. For the health of the worm gear, lubrication must be rigorously maintained.
    5. Worm gears are used in elevators, conveyors, hoisting equipment, gate control devices, and automotive steering systems.
- **Planetary Gear**:
    1. They have high torque transmission capability.
    2. They have lightweight as compared to a traditional gearbox for a similar gear ratio.
    3. During operation, some planetary gearing arrangements produce extra noise, and their gearing must be precise.
    4. They are more expensive than standard gearboxes.
    5. Planetary gearing arrangement is used in clocks, toys, turbine engines, printing Lathe and EOT cranes.
- **Spur Gear**:
    1. These types of gears are easy to operate, efficient, and reliable at low speed.
    2. They require numerous gears for significant reductions in speed.
    3. They also produced noise at a high rotational speed. They are incapable of handling high torque.
    4. These are the most affordable and widely produced since they are utilized in the most simple gearbox designs.

- **Helical Gears:**
    1. In helical gears, the teeth are cut at a "helix" angle to the leading edge of the gear so that the gears can mesh throughout the whole helical cut. As a result, torque may be transferred more smoothly.
    2. Easy to operate.
    3. Helical gears also make less noise than spur gears do.
    4. They also require numerous gears for significant reductions in speed.
    5. Require high maintenance cost.

Syma X5 quadcopter uses gears to rotate the propeller

The gearing in the drone lowers the rotor speed while boosting torque. A smaller engine may swing a larger propeller if it has more torque. The efficiency increases as the rotor diameter increases.