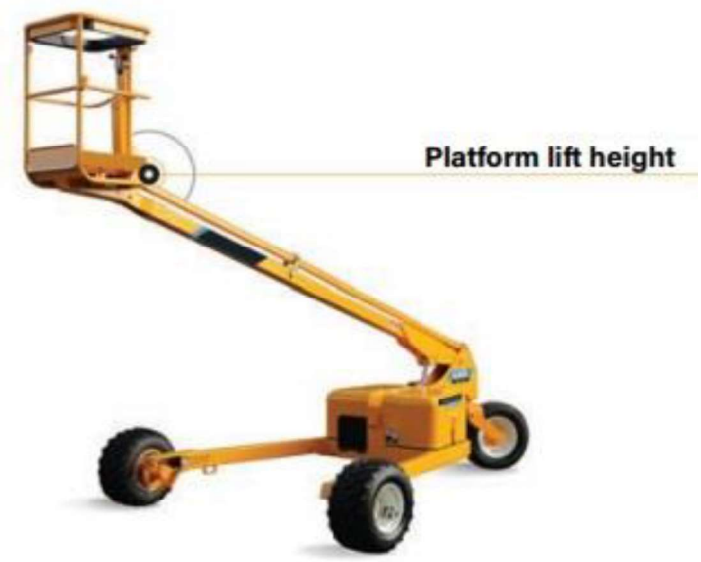
3. TYPES OF REMOTE SENSING PLATFORMS:

- The platform is a vehicle or carrier to mount the camera or sensor to acquire the information about a target under investigation.
- Based on the altitude above the earth surface, the platform can be classified as Ground borne platform, Air borne platform and Space borne platform.
- These platforms are crucial for a wide range of applications, including environmental monitoring, resource management, disaster assessment, and scientific research.

3.1 GROUND BORNE PLATFORM:

- A wide variety of ground-based platforms are used in remote sensing.
- Some of the more common ones are handheld devices, tripods, towers, and cranes.
- Instruments that are ground-based are often used to measure the quantity and quality of light coming from the sun or for close range characterization of objects.
- For example, to study properties of a single plant or a small patch of grass, it would make sense to use a ground-based instrument.
- Laboratory instruments are used almost exclusively for research, sensor calibration, and quality control.
- Field instruments are also largely used for research purposes.
- This type of remote sensing instrument is often hand-held or mounted on a tripod or other similar support.
- Permanent ground platforms are typically used for monitoring atmospheric phenomenon although they are also used for long-term monitoring of terrestrial features.
- Towers and cranes are often used to support research projects.



3.2 AIR BORNE PLATFORM

- Airborne platforms were the sole non-ground-based platforms for early remote sensing work.
- Aircrafts are generally used to acquire aerial photographs for photo interpretation and photogrammetric purposes.
- They are classified into two types. They are,
  - ❖ Low altitude aerial remote sensing
  - ❖ High altitude aerial remote sensing

➢ **Balloon**

- Balloons are used for remote sensing observation (aerial photography) and nature conservation studies. The first aerial images were acquired with a camera carried aloft by a balloon in 1859.
- Balloon floats at a constant height of about 30 km.

➢ **Drone**

- Drone is a miniature remotely piloted aircraft.
- Drone includes equipment of photography, infrared detection, radar observation and TV surveillance. It uses satellite communication link.
- An onboard computer controls the payload and stores data from different sensors and instruments.
- The unique advantage is that it could be accurately located above the area for which data was required and capable to provide both night and day data.

➢ **Aircraft**

- The first known aerial photograph was taken in 1858 by French photographer and balloonist, Gaspar Felix Tournachon, known as "Nadar".
- In 1855 Special aircraft with cameras and sensors on vibration less platforms are traditionally used to acquire aerial photographs and images of land surface features.

- While low altitude aerial photography results in large scale images providing detailed information on the terrain, the high-altitude smaller scale images offer advantage to cover a larger study area with low spatial resolution.

3.2 SPACE BORNE PLATFORM

- In spaceborne remote sensing, sensors are mounted on-board a spacecraft (space shuttle or satellite) orbiting the earth.
- Space-borne or satellite platform are onetime cost effected but relatively lower cost per unit area of coverage, can acquire imagery of entire earth without taking permission.
- Space borne imaging ranges from altitude 250 km to 36000 km.
- Platforms in space are not affected by the earth's atmosphere.
- The entire earth or any part of the earth can be covered at specified intervals.
- The coverage mainly depends on the orbit of the satellite.
- According to the orbital mode, there are two types of satellites- Geostationary or Earth synchronous and sun-synchronous.

➢ **Advantages:**

- Large area coverage.
- Quantitative measurement of ground features using radiometrically calibrated sensors.
- Semi-automated computerised processing and analysis.
- Relatively lower cost per unit area of coverage.

There are two types of well recognized satellite platforms- manned satellite platform and unmanned satellite platform.

➢ **Manned Satellite Platforms:**

- Manned satellite platforms are used as the last step, for rigorous testing of the remote sensors on board so that they can be finally incorporated in the unmanned satellites.
- Crew in the manned satellites operates the sensors as per the program schedule.

➢ **Unmanned Satellite Platforms:**

- Landsat series, SPOT series and IRS series of remote sensing satellite, NOAA series of meteorological satellites, the entire constellation of the GPS satellites and the GOES and INSAT series of geostationary environmental, communication, television broadcast, weather, and earth observation satellites etc are examples of unmanned satellite category.

4. CLASSIFICATION OF SATELLITES:

Satellites used in remote sensing can be classified based on various criteria, including their orbit, sensor type, and purpose. Here's a classification based on different aspects: