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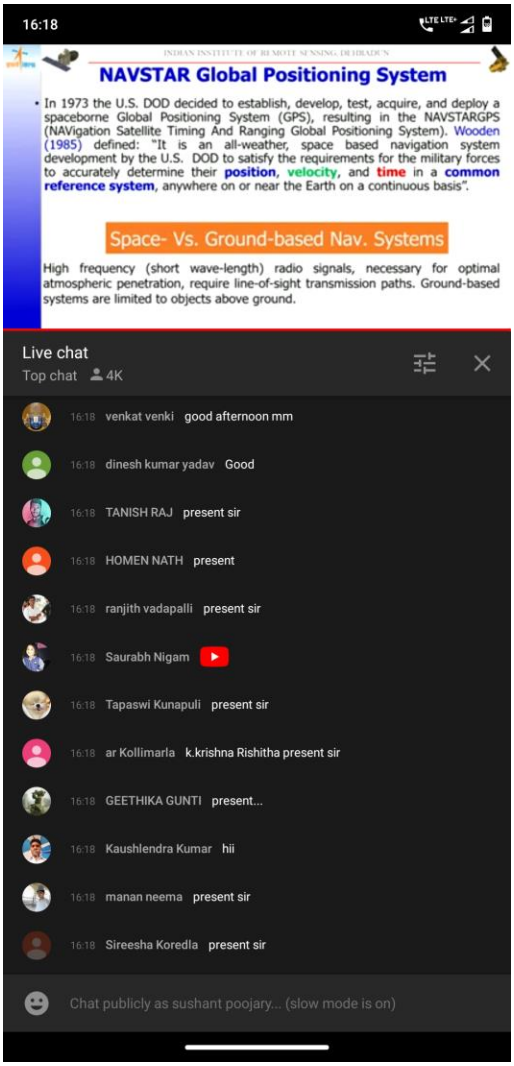
Course:	**Satellite Photogrammetry and its Applications**	**USN:**	**4AL18EC400**
Topic:	**Introduction to the GPS**	**Semester & Section:**	**6th SEM B**
Github Repository :	**Sushant7026**		

Report:



The mathematical and optical engineering principles involved in the creation of 3D photogrammetric surface images have been thoroughly described.

•The combination of fast acquisition speed and expanded surface coverage (up to 360 degrees) offer distinct advantages over older surface imaging modalities like laser scanning.With decreasing cost, 3Dstereophotogrammetric imaging systems are becoming increasingly common in clinical and research settings .

GPS, or the Global Positioning System, is a global navigation satellite system that provides location, velocity and time synchronization. GPS is everywhere. You can find GPS systems in your car, your smartphone and your watch. GPS helps you get where you are going, from point A to point B. What is GPS? Read this article to learn more about how it works, its history and future advancements. What is GPS and how does it work? The Global Positioning System (GPS) is a navigation system using satellites, a receiver and algorithms to synchronize location, velocity and time data for air, sea and land travel. The satellite system consists of a constellation of 24 satellites in six Earth-centered orbital planes, each with four satellites, orbiting at 13,000 miles (20,000 km) above Earth and traveling at a speed of 8,700 mph (14,000 km/h). While we only need three satellites to produce a location on earth's surface, a fourth satellite is often used to validate the information from the other three. The fourth satellite also moves us into the third dimension and allows us to calculate the altitude of a device. What are the three elements of GPS? GPS is made up of three different components, called segments, that work together to provide location information. The three segments of GPS are:

• Space (Satellites) — The satellites circling the Earth, transmitting signals to users on geographical position and time of day.

• Ground control — The Control Segment is made up of Earth-based monitor stations, master control stations and ground antenna. Control activities include tracking and operating the satellites in space and monitoring transmissions. There are monitoring stations on almost every continent in the world, including North and South America, Africa, Europe, Asia and Australia.

• User equipment — GPS receivers and transmitters including items like watches, smartphones and telematic devices. How does GPS work? GPS works through a technique called trilateration. Used to calculate location, velocity and elevation, trilateration collects signals from satellites to output location information. It is often mistaken for triangulation, which is used to measure angles, not distances. Satellites orbiting the earth send signals to be read and interpreted by a GPS device, situated on or near the earth's surface. To calculate location, a GPS device must be able to read the signal from at least four satellites. Each satellite in the network circles the earth twice a day, and each satellite sends a unique signal, orbital parameters and time. At any given moment, a GPS device can read the signals from six or more satellites.

A single satellite broadcasts a microwave signal which is picked up by a GPS device and used to calculate the distance from the GPS device to the satellite. Since a GPS device only gives information about the distance from a satellite, a single satellite cannot provide much location information. Satellites do not give off information about angles, so the location of a GPS device could be anywhere on a sphere's surface area.

•With any new technology, a number of factors must be considered in order to achieve optimal performance.

•Though camera manufacturers provide suggestions for device setup and calibration, limited information is available on the practical issues that will inevitably confront new users of this technology.

•However, such issues can adversely impact the reliability of data collection, and consequently, influence the clinical and research study results. In

•In order to ensure optimal interpretation of the study results,all aspects of data collection should be rigorously evaluated .

•The name photogrammetry comes from two Greek words, phos 'light' and grammar 'writing'; it has been defined as the art, science and technology of obtaining reliable quantitative information about physical objects and the environment through the process of recording, measuring and interpreting images and patterns of radiant or transmitted energy derived from sensor systems.