Nagar Yuwak Shikshan Sanstha's
Yeshwantrao Chavan College of Engineering
(An Empowered Autonomous Institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)
Hingna Road, Wanadongri, Nagpur - 441 110
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Ph.: 07104-237919, 234623, 329249, 329250 Fax: 07104-232376, Website: www.ycce.edu

Department of Computer Science & Engineering (IOT)

Vision of the Department

To be a well-known centre for pursuing computer education through innovative pedagogy, value-based education and industry collaboration.

Mission of the Department

To establish learning ambience for ushering in computer engineering professionals in core and multidisciplinary area by developing Problem-solving skills through emerging technologies.

Session 2025-2026

Vision: Dream of where you want.	Mission: Means to achieve Vision

Program Educational Objectives of the program (PEO): (broad statements that describe the professional and career accomplishments)

PEO1	Preparation	P: Preparation	Pep-CL abbreviation pronounce as Pep-si-lL easy to recall
PEO2	Core Competence	E: Environment (Learning Environment)	
PEO3	Breadth	P: Professionalism	
PEO4	Professionalism	C: Core Competence	
PEO5	Learning Environment	L: Breadth (Learning in diverse areas)	

Program Outcomes (PO): (statements that describe what a student should be able to do and know by the end of a program)

Keywords of POs:

Engineering knowledge, Problem analysis, Design/development of solutions, Conduct Investigations of Complex Problems, Engineering Tool Usage, The Engineer and The World, Ethics, Individual and Collaborative Team work, Communication, Project Management and Finance, Life-Long Learning

PSO Keywords: Cutting edge technologies, Research

"I am an engineer, and I know how to apply engineering knowledge to investigate, analyse and design solutions to complex problems using tools for entire world following all ethics in a collaborative way with proper management skills throughout my life." *to contribute to the development of cutting-edge technologies and Research*.

Integrity: I will adhere to the Laboratory Code of Conduct and ethics in its entirety.

Name and Signature of Student and Date
Bhushan Tayade
21-10-2025

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Session	2025-26 (ODD)	Course Name	PE-I - Geo-Intelligence for Smart IoT Devices Lab
Semester	5	Course Code	23IOT1523
Roll No	035	Name of Student	Bhushan V. Tayade

Practical Number	6
Course Outcome	Apply and demonstrate the use of proprietary and open-source GIS tools (e.g., QGIS) for creating, visualizing, and managing spatial datasets.
Aim	Collect real time GPS coordinates (5–10 points) using a mobile GPS app and import into QGIS.
Problem Definition	Every student has to use their own ideology here.
Theory (100 words)	Collecting real-time GPS coordinates helps in accurately mapping physical locations on the Earth's surface. Modern mobile applications like SW Maps, GPS Logger, and Geo Tracker use the phone's built-in GPS sensor to capture precise latitude and longitude values. • Each location point is automatically recorded as the user moves. • Around 5–10 points can be collected depending on the study area or objective. • The recorded data is then saved in formats such as GPX, KML, or CSV. • These files are transferred to a computer and imported into QGIS. • In QGIS, the points can be viewed, symbolized, labeled, and analyzed to measure distances, identify spatial patterns, or mark significant places for mapping and research.
Procedure and Execution (100 Words)	Implementation Steps: Procedure: 1. Install a GPS Application: Download and install a GPS tracking application such as SW Maps, GPS Logger, or Geo Tracker from the Play Store for accurate location recording. 2. Enable GPS Service:

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Turn on your phone's location (GPS) service to ensure precise and real-time coordinate capture.

3. Launch the Application:
   Open the installed GPS app and create a new project or data collection session to begin recording coordinates.

4. Collect GPS Points:
   Visit different real-world locations and record 5–10 points.
   Each point will automatically store its latitude, longitude, and sometimes altitude value.

5. Add Descriptive Details:
   Assign meaningful names or short descriptions to each recorded point, such as "School," "Park," "Hospital," or "Temple", for easier identification.

6. Save the Data File:
   Export or save the collected data in a suitable format such as GPX, KML, or CSV, depending on the app used.

7. Transfer Data to Computer:
   Send the saved file to your computer via USB cable, Bluetooth, Email, or Google Drive for further processing.

8. Open QGIS Software:
   Launch QGIS on your computer to visualize and analyze the collected GPS data.

9. Import the GPS Data:
   Navigate to Layer → Add Layer → Add Vector Layer, browse for your saved GPS file, and click Open to import it into QGIS.

10. Visualize the Points:
    The recorded locations will appear as point markers on the QGIS map canvas, overlaid on the base map.

11. View Attribute Information:
    Open the Attribute Table to verify the point names, coordinates, and other related information.

12. Style and Label the Data:

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Customize the map by changing the color, symbol shape, or size of points, and add labels to improve visual clarity.

13. Save or Export the Project:
Save your QGIS project file for future editing, or export the final map layout as an image (PNG) or PDF for reporting and presentation purposes.

Execution:
- Open the chosen GPS app and begin recording your real-time locations.
- Move to different places and tap Add Point or Mark Location at each site.
- Collect a total of 5–10 accurate GPS points around your selected area.
- Stop recording and export the collected data in a compatible format.
- Launch QGIS, load the data file, and visualize all points on the base map.
- Use QGIS analysis tools to study distance, direction, and spatial distribution among the collected points.

Stepwise Screenshots with steps:

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Output Analysis	The GPS coordinates collected using the mobile application were successfully imported into QGIS without any data loss or distortion. All recorded points appeared accurately on the map canvas, clearly reflecting their corresponding latitude and longitude positions. The Attribute Table displayed relevant information such as point names, coordinate values, and descriptions, verifying that the data was properly structured.
	Each plotted point corresponded closely with its real-world location, confirming the reliability and precision of the GPS data collection process. Overall, the exercise effectively demonstrated how real-time GPS data can be integrated, visualized, and analyzed within the QGIS environment for mapping and spatial interpretation purposes.
Link of student GitHub profile where lab assignment has been uploaded	"https://github.com/Bhushan-Tayade/YCCN-23071391.git"
Conclusion	The task of collecting real-time GPS coordinates using a mobile GPS application and importing them into QGIS was successfully performed. A total of 5–10 points were recorded accurately through the mobile app and saved in a compatible format such as KML or GPX. These points were then imported into QGIS, where they were correctly displayed on the map canvas.
	The activity demonstrated the effective integration of mobile-based data collection with desktop GIS analysis, showing how real-world locations can be visualized, labeled, and analyzed spatially using QGIS tools.
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Date	21-10-2025