

Activity Summary Report on ‘Re-training of teachers in the EU with an emphasis on gender equity’

I, Ms. Supuni Mahisha Nissanka, the Research Assistant of the ERASMUS+ project of LBS2ITS from the University of Sri Jayewardenepura, Sri Lanka for participating in a training programme named ‘**Re-training of teachers in the EU with an emphasis on gender equity**’ aligning to the ERASMUS+ project of Curricula Enrichment delivered through the Application of Location-based Services to Intelligent Transport Systems (LBS2ITS) during the period of 15th of May 2024 to 13th of June 2024 in the Department of Geodesy and Geoinformation at the Vienna University of Technology (TU Wien), Austria.

List of Activities done during the stay

1. Assignment project supervision- Module name ‘Location based Services’, under the degree of the International Master of Cartography and Master of Geodesy and Geoinformation at TU Win.

The following three assignment groups were supervised by me under the guidance of Prof. Retscher Guenther.

Name of the Research Project	Student Group No.	Name of Students	Index No
Smartphone-Based Traffic Congestion Monitoring and Prediction	11	Curry IIII William	12341823
		Thißen Rica Rosalie	12342277
		Pozdnyakova Tatiana	12342008
Smartphone-Based Walkability Assessment Using GPS Data	12	Georgiadi Athina	12341826
		Germann Stefanie Andrea	12342002
		Kaczorowski Jakub	12342004
QGIS-based Analysis of GPS Data for Urban Mobility Studies	13	Apostol Iulian-Ilie	12344157
		Fazal Itrat	12341825
		Noet Madeleine	12342007

Following aims and key points were covered from each group.

Group 11: Smartphone-Based Traffic Congestion Monitoring and Prediction

- Aim: Investigation of using smartphone data to monitor and predict traffic congestion in urban areas.
- Key Points: - Data collection from smartphones including GPS, accelerometer, and network connectivity. - Analysis of smartphone movement patterns to identify congested areas and traffic

flow. - Development of machine learning models to predict future traffic conditions based on historical data. - Integration of real-time traffic data from smartphones with existing traffic monitoring systems.

Group 12- Smartphone-Based Walkability Assessment Using GPS Data:

- Aim: Explore the feasibility and accuracy of assessing walkability in urban environments using smartphone GPS data.
- Key Points: - Collection of GPS data using smartphones during walking routes in diverse urban areas. - Analysis of GPS data to extract relevant walkability metrics such as sidewalk presence, street crossings, and green spaces accessibility. - Comparison of collected data with established walkability indices or standards. - Incorporation of other smartphone sensor data (e.g., accelerometer, gyroscope) to enhance walkability assessment.

Group 13- Dynamic Routing Optimization for Smartphones in Urban Environments

- Aim: Develop and evaluate dynamic routing algorithms for smartphones to optimize navigation in urban environments.
- Key Points: - Collection of real-time GPS data from smartphones during navigation in urban areas with varying traffic conditions. - Development of dynamic routing algorithms that consider real-time traffic data, road closures, and user preferences. - Implementation of the algorithms into a smartphone navigation application. - Evaluation of the performance of dynamic routing compared to traditional static routing methods through simulation and field tests. - Assessment of factors such as travel time, fuel efficiency, and user satisfaction.

2. Conducted a guest lecture on ‘Use of Smart Phone Data in Transportation’ to second semester students of degree of the International Master of Cartography and Master of Geodesy and Geoinformation at TU Win. From this lecture, I covered basics of smart phone data use in transportation and including the importance of Smart Phone Data in Transportation, applications in Traffic Management, applications in Public Transportation, Case Studies examples and Challenges and Limitations of the method. Further, the theoretical knowledge of this lecture helped to students for their assignments.
3. Conducted a seminar on ‘ Enhancing Urban Planning through Location-Based Services: Smart Cities for a Sustainable future’. I did a 45mines seminar for lectures and students at the Department of Geodesy and Geoinformation at the Vienna University of Technology. The seminar focused on the transformative role of Location-Based Services (LBS) in urban planning, with a special emphasis on their application in the development of smart cities aimed at achieving sustainability. The session explored how LBS can optimize various urban processes, enhance public services, and contribute to the overall quality of urban life.

4. Research Collaboration Discussions- During the visit, they had discussions on research collaboration with Univ. Prof. Dr.-Ing. Hans-Berndt Neuner, Head of the Engineering Geodesy Research Division, Dr. Jelena Gabela Majic, Project Coordinator of LBS2ITS and Mr. Max Brandstätter, Univ. Ass.Dipl.Ing., both members of the Engineering Geodesy Research Division, and Ms. Andrea Binn, Univ.Ass.in the Research Division Cartography.

Personal Outcomes:

- **Knowledge and Skills Gained:**
 - Enhanced understanding of the application of smartphone data in transportation and urban planning.
 - Gained practical experience in supervising project-based learning assignments.
 - Improved presentation and lecturing skills through guest lectures and seminars

- **Suggestions for the implementation of Project-Based Learning in Sri Lankan Universities:**
 - Inspired to implement project-based learning methodologies in Sri Lankan universities to enhance practical knowledge and skills among students.
 - Develop curriculum modules that include real-world projects similar to those supervised at TU Wien.
 - Provide guidance and support, similar to the supervision provided to students at TU Wien, ensuring students apply theoretical knowledge to practical problems.