

Postgraduate Seminar Series

Venue: Graduate Seminar Room

Date & Time: July 11, 2026 at 2:30 PM

Speaker Information

Propa Punam (Std No. 0424058004) is a full-time M.Sc. student in the Department of CSE, BUET. She completed her undergraduate studies at Khulna University of Engineering & Technology (KUET) in 2022. Her research interests lie in the fields of Wireless Ad hoc and Sensor Networks and Machine Learning. She is currently pursuing her postgraduate thesis under the supervision of Dr. A.K.M. Ashikur Rahman. She will be speaking about her ongoing research in this talk.



A WI-FI RECEIVED SIGNAL STRENGTH (RSS) BASED ATTENDANCE MANAGEMENT SYSTEM USING WI-FI FINGERPRINTING AND CROWDSENSING

Manual attendance management in educational institutions and workplaces is inherently time-consuming and inefficient. On the contrary, existing automated attendance systems based on Bluetooth Low Energy, GPS geofencing, facial recognition, and conventional Wi-Fi fingerprinting often suffer from poor indoor localization, environmental sensitivity, high computational cost, and privacy concerns. This thesis proposes a hybrid Wi-Fi RSS-based attendance management system that integrates indoor fingerprinting with crowdsensing to determine whether users are inside a designated area without relying on precise coordinates, fixed signal thresholds, or biometric data. The proposed algorithm clusters real-time crowdsensed Wi-Fi RSS vectors, computes cluster centroids, and matches them with a reference radio map using k-nearest neighbors and majority voting to assign location labels. The framework was implemented and evaluated in the Department of Computer Science and Engineering, BUET, using existing campus Wi-Fi infrastructure. Experimental results demonstrate a attendance classification accuracy of 94.74%. Robustness analysis under progressive access point failures shows that the proposed approach consistently outperforms conventional Wi-Fi fingerprinting and threshold-based methods. The framework is scalable, privacy-preserving, and readily applicable to classrooms, offices, seminar rooms, and other indoor attendance scenarios.