

BATCH NO: 11

PROJECT TITLE PRIVACY PRESERVING ALGORITHM FOR SPECTRUM SENSING IN COGNITIVE VEHICLE NETWORKS USING BLOCKCHAIN

ABSTRACT:

In the emerging era of cognitive vehicle networks, it is vital to preserve sensitive information about radio frequency spectrum usage. A pioneering privacy-preserving strategy for cognitive vehicle networks, employing blockchain, homomorphic encryption, and secure multi-party computation (SMPC) techniques. It ensures the confidentiality and integrity of spectrum sensing data, facilitating efficient spectrum utilization. By enabling computations on encrypted data, homomorphic encryption safeguards privacy. Integration of these techniques fosters trust, compliance with privacy regulations, and addresses critical concerns about data security. Leveraging blockchain establishes a decentralized, transparent communication framework, securing spectrum sensing findings against manipulation or fraud. SMPC enhances sensing accuracy while maintaining individual privacy through collaborative computation. This innovative approach provides a robust foundation for cognitive vehicle networks to optimize spectrum usage while protecting sensitive information. Through collaborative computation among multiple vehicles, the system can aggregate data from diverse sources without compromising the confidentiality of each contributor's input. This collaborative approach not only improves the reliability of spectrum sensing but also fosters a cooperative environment among networked vehicles. Overall, this privacy-preserving solution offers a robust foundation for cognitive vehicle networks to effectively utilize the radio frequency spectrum while safeguarding sensitive information.

Keywords: cognitive vehicle networks, Radio frequency spectrum, Privacy Preserving solution, Blockchain Technology, Homomorphic encryption, Immutability, Data manipulation, Collaboration