**Abstract:**

As urban centres continue to grow, the demand for reliable and sustainable energy sources becomes increasingly critical. Our project, "Empowering Smart Grid for the Future of Urban Centres," aims to design and simulate an advanced smart grid system that integrates renewable energy sources—specifically solar and wind power—along with Internet of Things (IoT) devices. The integration of these renewable energy systems into the grid is intended to enhance energy efficiency and reduce carbon emissions, contributing to a cleaner and more sustainable urban environment. Our approach involves the development of a simulation model that incorporates both solar panels and wind turbines, reflecting the diverse energy generation potential in urban settings. By employing IoT devices, we establish a two-way communication network that allows for real-time monitoring and management of energy production, storage, and consumption. This communication infrastructure enables dynamic responses to energy demands, optimization of resource allocation, and improved grid resilience. The project will demonstrate the feasibility and benefits of a smart grid that is not only capable of managing conventional and renewable energy sources but also equipped with control mechanisms. The expected outcomes include enhanced grid reliability, increased integration of clean energy, and the provision of valuable insights for future urban energy planning. This project sets the foundation for smarter, more responsive urban energy systems, paving the way for sustainable growth and energy security in cities.