

Inductive Power Transfer (IPT)/WPT (Wireless Power Transfer)-based Fast Charging Stations (WFFCS)

GPROSYS is currently improving their FFCS-Flywheel-Based Fast Charging System for wider deployment in Canada and worldwide. GPROSYS is looking for new innovations via R&D opportunities for improved FFCS to increase their market share. GPROSYS is seeking the development and integration of an intelligent control system with advanced optimization algorithms to improve charging/discharging mechanisms and to integrate Wireless Power Transfer (WPT) for wireless charging and discharging, which is important for dynamic and mobile operation towards smart cities. In addition, this will support the operation in harsh environment where driver or operator doesn't need to do manual connection and disconnection of cables for charging mobile systems such as vehicles, robots, etc. The integration of WPT will also support mobility and transportation electrification by reducing loads on grids by extending energy supply capabilities via resilient micro energy grids.

GPROSYS has been working with number of researchers, industries, and technology providers to design novel fast charging technology based on FFCS, and developed V2G/V2V fast charging stations. In addition, GPROSYS has started the design of multiple coils for high performance WPT system based on controlled magnetic fields to maximize the performance of WPT for effective FFCS operation and deployment. The enhanced FFCS with wireless charging/discharging capabilities is called WFFCS.

GPROSYS views the development of WFFCS as a strategic step to expand their solutions and creates more business opportunities for the implementation in energy and transportation infrastructures to support Ontario plans for sustainable communities.

GPROSYS is designing an intelligent control with optimization and economic analysis to improve WFFCS. GPROSYS team are performing the study, evaluation, and analysis of number of operational scenarios, with modeling and simulation, and optimization of the WFFCS performance and features. This will enable GPROSYS to deploy their advanced WFFCS solution in number of projects to support transportation electrification in Ontario.

GPROSYS offers the enhanced WFFCS for number of installations in residential, commercial, industrial, and energy and transportation infrastructures. The novel features and functionalities will support the practical implementation of WFFCS with improved ROI and higher market penetration.

GPROSYS will integrate the new design features of WFFCS to achieve higher performance and more support for smart and sustainable communities. The implementation projects will include analysis,

design, and evaluation of integrated control system with enhanced design features of WFFCS with improved performance and capabilities to operate in normal, abnormal, and harsh weather conditions. The solution will include load profile modeling, forecasting, and economic analysis, with accurate analysis of electricity prices.