Railway Contactless Energy Harvesting System

Status: Filled

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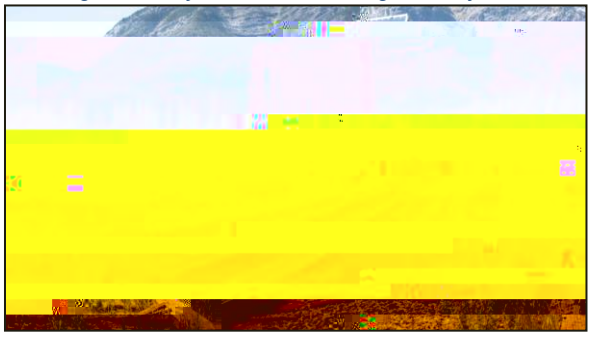
Project Description

LB Foster Rail Technologies provides wheel / rail interface technology solutions to the global freight and passenger rail industries. One of our products is a wayside, solar powered friction management system (shown below). The system applies either a lubricant or friction modifier to the wheel / rail interface, which reduces wheel and rail wear rates, and improves locomotive fuel economy.

Figure 1: Wayside Friction Management System



Currently there is strong demand to improve the intelligence of the wayside application system, in part by installing additional remote sensors to measure the performance of the system further down the track. Ideally these sensors would be self-powered during activation (i.e. when a train passes by), and generate sufficient power to perform the required data acquisition and wirelessly relay the data back to the wayside system. LB Foster would like to develop a state-of-the-art energy harvesting device capable of operating in the railway environment. This device is to be mounted on the rail and capture energy from the passing train. However, due to safety regulations, the device must not make physical contact with the passing train. The proposed project includes conducting a survey of the state-of-the-art in energy harvesting electronics, and developing a prototype system which can demonstrate the maximum amount of power capable of being produced from a passing train.

Resources available to the project team include:

1. Access to the LB Foster R&D lab (including tools, testing equipment, prototyping supplies).
2. Engineering and project supervisor advice and consultancy from the LB Foster as required.
3. Access to LB Foster manufacturing and supply chain as required.
4. $3,000 CAD for prototype development (material costs, manufacturing time)