



X-POLES use case

A success story from DAVE Embedded Systems

THE CONTEXT

Nowadays Telecom and Power Companies are putting increasing attention on cost effective processes to extend the lives of existing facilities while maintaining adequate levels of efficiency and reliability. Wooden poles are still widely used and installed on overhead lines all over the world. As a result, installed bases of millions of wooden poles require to be wisely managed in terms of capital and maintenance budgetary requirements, while assuring high reliability standards.

OXYS Solutions

Oxys Solutions, part of CINETIX Group, develops innovative products, focusing on integrating different competencies and technologies. The cooperation with the well-known Departments of Engineering at the Universities of Padua and Trento, and the partnership with leading technology providers enable Oxys team to create innovative solutions and to be always on top of new technologies. Thanks to this approach, Oxys Solutions develops cross technology products which address worldwide different markets.

DAVE Embedded Systems

DAVE Embedded Systems, thanks to its expertise on design and development of embedded systems connected to its attitude to support and promote customer's ideas is the best partner for companies who wants to focus on their own added.

THE SOLUTION

X-Poles, a CINETIX Group product, is a portable, lightweight, battery operated, instrument to verify the wooden poles conditions (typically telephone poles) through a Patented vibrational analysis. The typical end-user is a technician performing operation & maintenance activities on the poles. By using a mobile APP as the GUI interface connected via wireless (Bluetooth and/or WLAN) to X-Poles the user is able to interact with the device. Typically X-Poles is used outdoor. The device is fixed to the pole through an elastic strap. The test starts with a vibrations measurement generated by an hammer. The instrument, through a built in accelerometer collects the vibrations of the pole, then extracts the natural eigenfrequency and through a SW analysis evaluates the Ultimate Breaking Strength of the pole. For data download, firmware upgrade, service, X-Poles uses the Ethernet port. The internal controller allows the easy add-on of the basic asset-inventory automation tasks as: GPS based mapping of the poles, structured collection of inventory information (e.g. lines or equipments installed, pole age etc.) automatic interaction with existing assets databases/inventories and asset management systems. X-Poles is made with an intelligent device that is used to capture the pole measurement data, analyze it and through an innovative and unique algorithm makes an assessment on the pole strength. A Bluetooth connection works either with an Apple iPhone, Android or Windows devices. X-Poles can work in stand-by mode in order to improve battery performance, special attention was paid to the design the of low-power solution. Energy management, battery charging and stand-by operation mode are handled.



"We in Oxys Solutions, decided to face this way working with DAVE Embedded Systems because we were sure of working with an expert team in providing hardware solutions able to guarantee a customized service, suited to our needs supporting us in the product development. Together, we carried out a project for about 9 months, assisted in the product design and continuously updated throughout each development stage. A trip that has brought us to the achievement of a common goal, CINETIX X-Poles. A goal we are proud of. Great team, great job! "

Eng. Umberto Bovo – General Manager Oxys Solutions

TECHNICAL SPECIFICATIONS

Connectivity	GPS GPRS WIFI Bluetooth Ethernet 10/100
Interfaces	Internal 3D accelerometer GPS Audio output microSD on board WiFi/Bluetooth Interface mini USB
Power	Lithium Battery, 3.7 V 6000mAh up to 1week standby Recharge via USB interface (6hours - max 1.5A)
Environmental	IP grade protection: IP65 Temperature range: -20 / 70°C Vibration and Shock resistance
Reliability	IP grade protection: IP65 Temperature range: -20 / 70°C Vibration and Shock resistance

