Multiplexing Communications Units Aid Taxi Drivers

In-Taxi dispatch control systems have traditionally consisted of mobile data units, which exchange dispatch information with the central office using Public Mobile Radio (PMR). Although GPRS can be used as an alternative communication solution, PMR remains the preferred solution as it offers more reliability in a localised area, and is more cost effective for medium and large scale fleets. In such fleets, PMR is used as the primary method of data communications, with GPRS fall-back or out of range.

GBE have been successfully manufacturing and supplying their own mobile data units for the Auriga Taxi Dispatch System for many years, but has identified a paradigm shift in the market requirements towards highly capable hand held devices such as PDAs and Smartphones. The challenge was to rapidly develop a device that would supplement such mass market equipment with the power and communication facilities peculiar to the in-vehicle environment.

In particular, GBE knew from experience, that implementing a driver for digital exchange over PMR was non-trivial, would use a lot of processing capacity and could exhibit poor quality communication characteristics. Having the microcontroller generate keyed audio tones via DSP was possible but far from ideal.

The electronic design for the PMR interface utilised a CMX469AD3 - this CML chip performs audio modem 2-tone MSK (Minimum Shift Keying) full duplex data encoding on a 1200, 2400 or 4800 kHz carrier signal. Basing the design on this chip simplified the firmware considerations, simplified testing and reduced time to market, whilst reducing the processing requirements placed upon the 8bit controller MCU.

The PMR interface is a key feature of GBE's "Starman*" device - a USB host unit that can power a Smartphone (or almost any Windows Embedded CE device) from the vehicle battery, while providing serial and radio communications and general I/O access to applications. Over 5,000 units have now been released since the beginning of 2011 with strong positive feedback from customers about the PMR access quality and reliability.

Basing the PMR signal processing solution around the CML modem chip allowed GBE to meet their manufacturing target dates, and ensured that the radio communication channel provided to the taxi dispatch systems was of the highest quality.

For more information or to obtain a quote please contact info@gbelectronics.com or for CMX469 device information visit www.cmlmicro.com.

PLEASE INCLUDE IN RELEASE: *Starman is protected under Patent Number 1008906.8

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