

Universal Telemetry Framework — Development

Client

Compel, founded in 1993, is one of the largest Russian distributors of electronic components, providing deliveries from leading world producers. Compel delivers integrated circuits, discrete components, relays, energy sources, indicators and displays, industrial video cameras, and components for radio frequency identifiers. Compel has sales representatives in Moscow, Saint-Petersburg, Yekaterinburg, Novosibirsk, Kiev and Minsk.

Business Need

The Client needed software development framework for telemetry systems to be distributed with one of the new GSM devices - Fastrack Supreme GSM modem (Sierra Wireless). Fastrack Supreme is targeted at providers of industry specific mobile solutions or corporate users. With hardware extensions and custom-made software, it can be used for a variety of purposes - for example, in vehicle navigators. To increase the product appeal and simplicity of implementation for the buyers, and increase the competitive advantage and sales volumes, the Client decided to offer the device bundled with a software development framework that makes custom software development for the modem as easy and fast as possible. Auriga was chosen to deliver such a framework, as a company with extensive experience of embedded development for telecom vertical.

Objectives

Auriga team had to develop a two-tier system with:

- a server that communicates with remote devices, processes the data and represents the data through the web interface
- a client that resides on remote devices and serves to acquire the data and transmit it to the server
- a flexible and extendable protocol for communication between the server and the client

Solution

Universal GSM Telemetry (UT) is a framework to acquire process and represent data from remote GSM devices, as well as provide means to control the remote devices. UT can be implemented to deliver various software for mobile

devices, such as route tracking systems or remote control systems on the basis of a GPS device. The UT framework is targeted at the mobile software developers, and is a convenient instrument for quick telemetry systems prototyping. The developer can use UT framework as is or expand the framework capabilities by creating custom-made software.

Universal GSM Telemetry (UT) is a customizable, configurable platform that can be used to develop software systems for GSM telemetry, monitoring and remote control. It consists of the following components:

- The UT server created and hosted by Auriga collects and processes data, and is realized on a Linux/Apache/MySQL/Java platform. It uses a database to store and process telemetry data, and sends commands to the remote device. The UT server provides HTML interface for accessing and monitoring data.
- The client-server communication uses an XML-based protocol.
- The client software collects and transfers the data to the server, collects the information about the device and supports commands such as module reset and setting parameter values.

The key feature that distinguishes UT platform from other mobile software development frameworks is its excellent flexibility and expandability, assured by its flexible data transfer protocol that can handle any reasonable telemetry data such as GSM coordinates, mobile network CID (Cell ID), the remote device's signal strength, etc. Due to the system's module architecture, the framework can be expanded by adding custom parameters, data types, and commands.

The solution received significant interest among the potential customers of the Client. Being a flexible framework for a variety of software projects for remote telemetry and control, the solution will find a ready market among GSM/GPRS software developers.

Tools and Technologies

- platform: Wavecom Supreme modem
- GPRS/HTTP/POST; XML (ezXML)
- Linux/Apache/MySQL/Java