Some of the developed projects for Big Companies In Automotive

While1

(www.while1.com)

While1 main customers for Automotive Developments

FIAT Group Automobiles

E5 Solution

Study, analysis and develop of a specific web enterprise application that allow **FGA** to be compliant to **UE 715/2007 and 692/2008 Regulations**. In this scenario an OEM must enable a **Workshop Independent Operator (I.O.)** to perform ECU **Reflashing**, **Configuration** & **Replacement** through a standard **SAE J2534 VCI** and a **standard PC**.

- **7x7x24**
- **10000 Workstation**

VCI Diagnosis

Requirements definition for all levels (HW, system, application both on Ruggedized PC and on VCI; media and **PCI – Ruggedized, Ruggedized and proprietary protocols**) for a new FIAT group **worldwide** diagnosis tool (**Fiat Automobiles, IVECO, CNH, Maserati**).

Team leading in definition and verification with proof of concepts of full compatibility between automotive market standards in terms of media (e.g. WiFi with ISO 9141, 14230, 15765) and operating systems (Real Time or standard with CAN and/or K/L).

Support on:

- technical strategies to pursue in medium (2-3 years) and long period (more than 5 years)
- in census and documentation of platform AS IS
- to integration of company departments towards a data platform common to all processes
- call for tenders

Realization of a **VCI** board emulator proof of concept and prototype with **SAE J2534** interface ad support of legacy implementation. Ready for:

- **7x7x24**
- **5000 Workstation**

Abarth Flash Tool

Allows ABARTH to control and optimize the entire process of selling the kit SuperSport.
When online workshop devices send back to central systems logs of performed activities. Flashing is any case submitted to prior & continuous checks against tampering and unauthorized vehicles flashing. Data are stored in the VCI only and with strong encryption security for communication and stored files. The human interface implemented inside the NetBook system use a sophisticated GUI (like VideoGame).

The system is completely prepared by While1 and includes:

- **1 BOX**
- **1 Netbook Lenovo**
- **1 VCI Etas 6515 Abarth Version (java included)**

- **7x7x24**
- **200 Dealers**

DIAGNOSI MASERATI Solution

Study, analysis and develop of a specific protocol gateway for all automotive protocols (UDS, KW2000 on CAN and K) that runs on a standard PC and uses a ISO 22900 compliant VCI to provide whole diagnosis for all assisted Maserati vehicles at dealers and workshop.

- **7x7x24**
- **600 Workstation**

DIAGNOSI MASERATI Legacy Solution

Study, analysis and develop of a specific proof of concept for a gateway that supports all Maserati legacy automotive protocols that runs on a standard PC and uses a ISO 22900 compliant VCI to provide whole diagnosis for all assisted Maserati legacy vehicles at dealers and workshop.

- **7x7x24**
- **600 Workstation**

DIAGNOSI MASERATI CAN Bus Monitor on Bluetooth

Study, analysis and develop of a specific application able to collect properly CAN messages running on a standard PC and using a ISO 22900 compliant VCI to provide whole diagnosis for all assisted Maserati legacy vehicles at dealers and workshop.

- **7x7x24**
- **600 Workstation**

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IVECO Tachygraphy

Study, analysis and develop of a specific application embedded on Convergence C3 ECU that, using UDS communication on bus and GPRS communication, upload, on demand, all data logged from Digital Tachygraphy on board for fleet management. This system support and enable IVECO fleet management all over Europe.

- **7x7x24**
- **10000 Vehicles**

SAE J2534 on RP1210

Study, analysis and develop of a standard SAE J2534 implementation for CAN and 15765/2 over RP1210A specification for RP1210 VCI. This implementation allows CNH to manage new UDS ECU on new generation vehicles in CNH worldwide dealers and workshops using old generation and currently available RP1210 VCI.

- **7x7x24**
- **20000 Workstation**

AvioGroup

Boat Telegraph Management System

Design, develop, integration and support of the whole software stack for management of telegraph for engines control. This system is used on battleships (**frigate**) for the communications among different areas (chief bridge, engine room, etc) and for automatic alarm management. Such alarms are automatically activated by the systems on communication error events or when commands from master areas (e.g. chief bridge) or high priorities commands are not executed or when specific triggers occurs from sensors.

Telegraphs are connected each other via a **redundant RS485 line**. While 1 develops a proprietary stack on top of this channel to resolve connectivity issues and to insulate applications from low level layers. The multi point **RS485 developed protocol layer** named ***WISP*** exposes a **socket like** session interface to the above applications and implements a almost full **TCP/IP like** protocol with all related features (collisions, retransmission, timeout management, etc).

The application realizes full diagnosis of all components in the system (communication line, display, keyboard …) and perform download on demand of the software updates on control units, watch dog refresh etc. Master/slave hierarchy is run-time dynamically defined according to configuration and commands requested by the operator. The single node can operate as master or slave according to operator requests and to requested command. The master send requests and wait for completion, the slave for that command execute requests and send responses, all other nodes can overview the status of each command and notify operator on general warning or specific related issues on commands in progress.

- **7x7x24**
- **10 Frigate**

Tattile

CAN Module for Alstom

Design, develop, integration and support of a whole communication system for **CAN/MVB** buses interactions. These buses are present onto railways systems produced by **Alstom S.p.a.**

The delivery of the project are:

- A system able to interface and manage **CAN** bus via **CANOPEN** protocol (**CIA specifications**: 301_v04000201) on **Alstom CA250 trains (Pendolino for China railways).**
- On top of this system a full set of micro web services that allow full management, via GET&PUT operations, of the complete set of variables designed operating management of the train.

This technology allows the clients to interact with the system in a protected and structured architecture by simply accessing services according provided WSDL (SOAP). To complete the SOA management all asynchronous notifications, alerting and changing policies are also implemented as specific web services and properly described and published via WSDL.

With this schema clients are automatically enabled and converted to **micro-server** that are able to publish new web services to main server and to allow large scale asynchronous event-driven architecture avoiding bus consumption polling activities.

The developed protocol allow to implement according to **CANOPEN** standard both **Master** and **Slave** semantic, giving developers one tool and one layer for both components. It also allows to easy develop emulators and test pattern. The whole product has been developed for embedded HW with proprietary customer operating system and **Linux Debian**.

- **7x7x24**
- **150 Trains**

SEPA

Passenger Information System for ADTRANZ trains

Design, develop, integration and support of a whole communication system for **Adtranz** customer. The target is to provide a PIS (Passenger Information System) for the audio and voice plus display, informational devices (this and next stations, junctions, etc) and messages management on locomotives **E464.** Equipped trains are composed by **E464** locomotive and a series of **UXC-Z1** railroad cars.

The PIS is hosted by a system based on Motorola **MC68360** processor and communicates with several peripherals: **MVB *Bus***, ***Bargellini Keyboard***, ***Flash card***, ***linee RS485/422/232***. The adopted operating system is a While 1 proprietary real time **kernel** named **WMTK.** The application performs all user informational actions (messages, voice announces, etc) driven by data on RAM card and managing all information from train sensors such as speed, door status (ope, close, etc), dedicated center←→train telephone, etc.

- **7x7x24**
- **300 Locomotives**
- **1000 Railroad cars**

Passenger Information System TAF trains

Design, develop, integration and support of a whole communication system for TAF named trains (Treno ad Alta Frequentazione, High Volume Passengers Train) with same architecture used for **Adtranz** but on different trains.

- **7x7x24**
- **100 Trains**

KEEPER safety system

Design, develop, integration and support of the whole framework for the **Keeper** system. The goal is to have a centralized system for monitoring of alarms and sensors according to CEI specifications; the system must also be ready for easy and fast integration of different and various control units for different alarms, fire alarms and monitoring systems.
Keeper manages **2000** alarm **control units** connected via ISDN and/or PSTN. The system is full CEI compliant and therefore respects all acceptable response times for each attached sensor and control unit plus guarantee the maximum times for displaying messages and alarms to the operators according priorities of each sensor. As requested by the end customer (INPS, Italian Welfare Institute) Keeper is also able to manage a whole front end crash and therefore up to 2000 control units disconnection events.

- **7x7x24**
- **2000 Control Units**

WHILE 1 S.r.l.

The measure of quality

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