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Product Life Cycle Support Services for RFID based prescription bottle reader

Introduction

This case study showcases Mistral's expertise in providing Product Lifecycle support services in the consumer electronics market. Mistral had developed a product for a Device Manufacturer specializing in providing highly intuitive and intelligent technology solutions for people with visual impairments. Mistral's concept-to-deployment design and engineering services helped in realizing the customer's vision of the product with quicker time-to-market. Mistral started providing product sustenance services soon after product deployment.

> " RFID based pill bottle reader used by the visually impaired for medicine information, either by voiced out information, Braille or large print labels "

The Customer

The customer is a global organization providing technology enabled products that aims to empower people with visual impairments. The company's key aim is to provide customers with greater independence through technology.

The Requirement

Based on customer requirements, Mistral designed and developed an RFID enabled prescription bottle reader which could be used by visually impaired patients to hear the voiced-out medicine information stored in the RFID label of the bottle. Post the design and development of the product, the customer required product lifecycle support services for continued sustenance. This included: support for hardware, middleware and application software enhancements. The enhancements included integration of application software with third party software modules.

Solution Provided

The product designed and developed by Mistral is based on an Analog Devices Blackfin processor. Mistral developed the application software used by the pharmacies to program the RFID labels.

Mistral's lifecycle support services for this product included the following:

- Product Enhancements
  - The RFID label for the prescription bottle could be programmed by pharmacies using a USB interface from the Personal Computer. This communication was later enhanced to support communication via the Ethernet. This enhancement included updates to the application software used by pharmacies on their systems, updates in the firmware and also hardware changes to include a third party Ethernet to Serial converter board to replace the USB to serial converter.
  - The pharmacy application software was integrated to a Braille printer. This enabled the pharmacies to print prescription information on to Braille labels which could be pasted on to the pill bottles.

- The pharmacy software was also integrated to a large view bar code printer. This enabled pharmacies to print the label information (selectively) on to a label which could be pasted on the pill bottle as a booklet. Flexibility on font selection was an added advantage. This helped patients with low vision to read their prescription information. The data was also embedded in the bar code format which could be easily scanned and voiced out by an iPhone using an iOS application developed for the same.

- The application software was upgraded to support automatic software download over the internet whenever a new release is made available. This included new versions of application software, prescription database and firmware. To enable the same, a new versioning system was added.

- Porting & Migration

  - Porting of third party application software for printer integration was done by Mistral's engineering team.

- Production Support

  - Downloading the firmware onto the prescription reader was initially made possible but was a time-consuming task especially for the production units. To address this, a third party NAND gang programmer was approached. All support was given to the third party to enable development of the programmer software.

- Regular service pack releases and patch releases.

The Challenges

- **Power Management:** As the device is battery-powered, power manage- -ment was a critical requirement. Issues related to battery power sustenance that came up after prolonged use was attended to by testing and replacement of a few electrical components.

- **Third-party software integration support:** The product enhancements required integration of the software with a third party software. The enhancements were carried out smoothly and the updated versions of software were released in the market on time.

- **Knowledge and Resource management:** To address challenges and to be updated with latest technologies, applications and programs relating to the product, Mistral's team stayed updated on the latest best practices to implement them into the program. Mistral's strong employee retention and knowledge management skills ensured that knowledgeable and consistent resources were available throughout the course of the service.

Key Achievements

- All enhanced versions of software have been released in time.

- Issues that came up within the support phase have been documented and resolved.

Customer Benefits

- **Long-term support:** Mistral's expert engineering team supported the product for a long duration of over six years. The team supporting the customer has been hands-on on the project since the beginning.

- **End-to-end solution:** Mistral offered the client a complete end-to-end solution right from concept to deployment and lifecycle support services. This helped the customer to save time in terms of dealing with multiple vendors and helped in getting updated product enhancements out on time.

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