

NON-INVASIVE MEDICAL ELECTRONICS


MISTRAL
... Partners in Real Time



Overview

The Product Engineering Services team at Mistral has experience in designing and developing non-invasive medical devices that support and aid the medical professionals in communication, data acquisition and assistance. Some of the devices that the team has designed include solutions for the vision impaired marketplace, Fetal heart rate monitoring, high end camera solutions, ultrasound equipment, BP, infusion pumps etc.

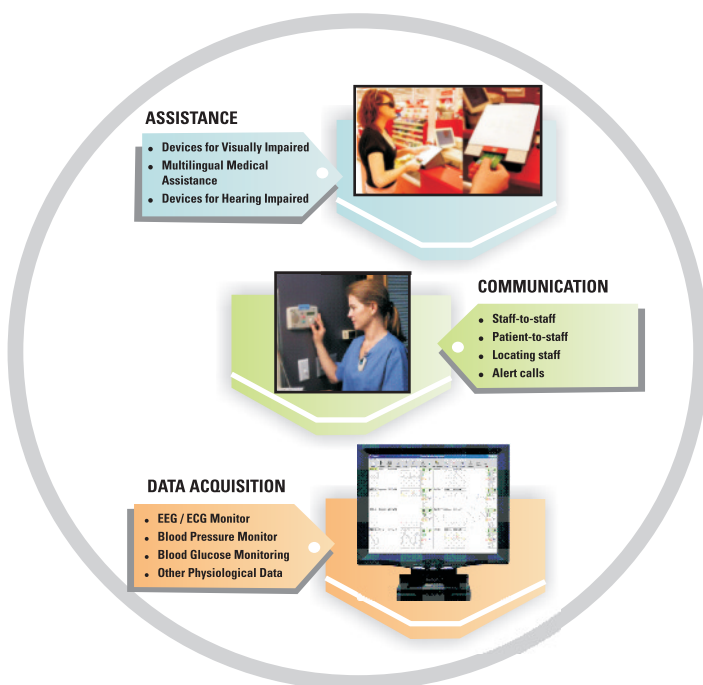
The Mistral team has worked with quite a few medical device companies working on non-invasive device design, leading up to FDA certification of those devices. Mistral offers broad platform support, bringing in our processor/operating system/testing/system validation expertise to customer's design.

Mistral's embedded product design services include board and FPGA design, integration of medical sensors, porting, middleware and application development. Some of the other areas that are not directly related to medical devices, but are important to deploying a medical device (and protecting IP) include secure boot, encrypted storage with on the fly decryption, and even PC application development.

Domain Expertise

- ▲ Middleware and Embedded Application development
 - Platform-specific multimedia engines
 - 2D and 3D graphics
 - Applications that use various sensors and peripherals
- ▲ Integrating third party solutions
 - Media streaming libraries and codecs
 - Industry-standard codec integration
 - OCR, Speech-to-Text, Text-to-Speech
 - Wireless stack integration/customization
 - Integration of non-invasive sensors and peripherals - ECG/EEG, Blood Pressure, SpO2 (Pulse Oximetry), HR (Heart Rate), Body Temperature etc.
- ▲ Hardware and Firmware development
 - Hardware software co-design
 - System partitioning between hardware, software and FPGA
 - Firmware and BSP
 - Small footprint, power-optimized designs
 - Multiple RF and Wireless
 - Independent Verification and Validation
- ▲ Eco-system to handle concept to deployment
 - Design for Manufacturability
 - Mechanical design and fabrication
 - Compliance trials, certification testing
 - Production support with test jigs and suites
 - Product sustenance services.

NON-INVASIVE MEDICAL ELECTRONICS SEGMENTS



Skill Set

Platforms

- ▶ ARM: TI, Freescale, NXP, Samsung
- ▶ ARM+DSP: TI, Freescale
- ▶ DSP: TI, ADI
- ▶ Microcontrollers: TI, Freescale, PIC, Renesas, Cypress
- ▶ FPGA: Xilinx, Altera, Actel, Lattice

Firmware

- ▶ Embedded Linux (Open source and proprietary)
- ▶ Android
- ▶ Windows Embedded

Languages and Tools

- ▶ C, C++, Assembly Level
- ▶ Perl, Javascript
- ▶ UML
- ▶ VHDL and Verilog
- ▶ ARM and DSP development tools.

Case Study

Talking Barcode Scanner

- ▶ "All-in-one" talking bar code scanner that aids visually or print impaired individuals identify items via their bar code
- ▶ Complete product development: hardware design, Linux firmware, middleware application development, third party libraries integration, verification and validation and use cases
- ▶ Based on Texas Instruments' AM/DM37x Sitara Microprocessor
- ▶ Designing, customizing and implementation of applications to suit the product's various modes of operations and the different activities to be performed in each mode
- ▶ Customizing the video capture to suit variations in camera inputs
- ▶ Product assessment through independent verification and validation across different stages of product development, including pre-certification tests and FCC Class B pre-qualification tests
- ▶ Highlights
 - In-built 5.0MP camera and communication WIFI and Bluetooth
 - Text-to-Speech
 - Image Processing for currency and color identification
 - Skype Integration - first time in a product from this segment.



Mistral is a technology design and systems engineering company providing end-to-end solutions for product design and application deployment. Mistral is focused in three business domains: Product Engineering Services, Defense Solutions and Homeland Security. Mistral provides total solutions for a given requirement, which may include

hardware board design, embedded software development, FPGA design, systems integration and customized turnkey solutions.

Mistral's strategic partnerships with leading technology companies help provide customers with a comprehensive package of end-to-end solutions.



Mistral Solutions Pvt. Ltd.,
No.60, 'Adarsh Regent',
100 Ft. Ring Road,
Domlur Extension, Bangalore - 560 071
Tel: +91-80-3091 2600
Fax: +91-80-2535 6440
E-mail: info@mistralsolutions.com

Mistral Solutions Inc.,
4633 Old Ironsides Drive,
Suite 410, Santa Clara, CA 95054
Tel: +1-408-705-2240
Cell: +1-925-548-2606
Fax: +1-408-987-9665
E-mail: usa@mistralsolutions.com

Branch Offices:
INDIA
● Hyderabad
● New Delhi
USA
● Dallas, Texas