

# MEDICAL DEVICE ENGINEERING SERVICES



The background of the lower half of the image shows a hand interacting with a tablet. The tablet screen displays a medical waveform, likely an ECG, with a finger pointing at it. On the right side of the screen, there are numerical readouts: '121/75 mm.Hg AP' and '73 min<sup>-1</sup> heart-rate'. The overall theme is the integration of healthcare and technology.

**Integrating Healthcare  
and Technology**

# Medical Device Engineering

Medical device engineering services are transforming healthcare for a better tomorrow. Newer technologies are leading to innovative solutions. IoT is empowering healthcare professionals to serve patients remotely with robust, hi-tech and portable solutions.

At elnfochips, we are enabling this transformation by leveraging our expertise in areas such as miniaturization, portability, enhanced connectivity and machine-to-machine communication. We have hands-on engineering experience in FDA Class 2 and Class 3 medical devices for health monitoring, diagnostics & imaging, and telemedicine.

We also have in-depth domain and process (IEC 60601 - 1/2/6, IEC 62304, 510K, ISO 13485, HIPAA) expertise, having developed various products including Drug Dispenser Units, Telehealth Diagnostics Solutions, Remote Patient Monitoring Systems, Connected Health Platforms, Auto Injector Devices, Portable Medical Equipment and more.



## Our Offerings



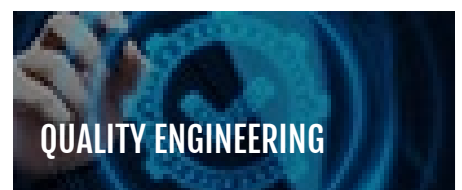
### DEVICE ENGINEERING

- High-speed, Multi-processor and FPGA Board Design
- Platform Expertise: Intel, Xilinx, NVIDIA, Qualcomm Snapdragon, NXP, TI
- Low Power, Portable Designs with Interfaces like BLE, RFID, Wi-Fi and many more
- Firmware, OS Porting
- Experience in HW/SW Integration; Linux, languages including C/C++, Java
- Mechanical and Industrial Design



### DIGITAL ENGINEERING

- Connected Health / IoT Platform Development and Services
- Digital Backbone Creation for Existing Products
- Improve Diagnostics and Prognostics Accuracy through AI/ML at the Edge and Cloud
- Cloud Migration and Development Services
- DevOps & CloudOps
- Business Intelligence, Data Visualization, Big Data Analytics









### QUALITY ENGINEERING

- Hardware Testing DFT/DFM
- Embedded Software Testing
- System Validation and Verification
- End to end System Testing- Hardware, Firmware, Software
- Product Functional Testing, Web and Mobile Testing
- Snapbricks™ – Device to Cloud IoT test Automation Framework
- Product QA & Testing in Addition to FDA/FCC/CE/UL Certification Support



# Integrated Design-to-Certification Solutions

## Solution Areas

 Hardware Design & Development	 Model Based Design	 Imaging, AI Enablement
 Android & iOS Portability	 BOM Optimization	 Verification / Validation
 QA & Testing	 Product Sustenance	 Certification Support

## Process Expertise

### Development

- IEC 60601 - 1
- IEC 60601 - 1 - 2
- IEC 60601 - 1 - 6
- IEC 62304

### Certification

- 510 (K)
- ISO 9001
- ISO 13485

### Others

- HIPAA Compliance

## Success Stories

### AI enabled Connected Healthcare

Microsoft Azure based intelligent solution for client's AI driven imaging devices including Android based tablet and application development

### Portable Health Assessment and Monitoring Device

Complete product design of multi-sensing monitoring device through mouth and thumb including temperature, heart rate, respiratory rate, blood pressure and oxygen.

### Class II Telehealth Device

Complete design and development of Class II device based on Qualcomm Snapdragon 410 processor with 8MP Camera, 2.4 inch LCD display with touch.

### Medical Device And Connected Web Portal

Product enables the heart to rest by improving blood flow and/or performing heart pumping. It has 5 variants & 2 types of consoles with web portal connectivity for remote diagnostics.

### Wearable Heart Rate Monitoring Device

Proof Of Concept of a Real-time Cardio Monitoring Platform with Wireless ECG probe that will collect and transmit data to Android application over BLE. The Android application then do the math/algorithm to display the ECG graph on it.

### Product Miniaturization – Endoscopy

Re-engineering from rack-based Arthroscopy and endoscopy systems to table top arthroscopic imaging system designed specifically for in-office diagnostic testing.

### Remote Ultrasound Monitoring

Black box and application software that could connect to Wi-Fi networks to display ultrasound output on tablets. A server communicates with different PCs and tablets.

### Brain Oxygen Monitoring Tablet

Compact and light weight NXP i.MX8 based tablet for real-time measurement of oxygenated, deoxygenated hemoglobin and Tissue Oxygenation Index (TOI).

### Ophthalmology Equipment

Firmware development, application development and product testing of TI TIAM57XX based ophthalmology equipment with USB 3.0 Camera and advance features for image acquisition, analysis and medical records.

### FDA Class II Non-invasive Diagnosis Device

Non-invasive diagnosis of concussion through eye ball motion tracking within 4 minutes via client's proprietary technology that collects and analyzes over 100,000 data points.

### Clinical Inventory Management

Re-engineering of drug cabinet hardware with RFID based web inventory management system to prevent overstocking and wastage on product expiry.

# Why eInfochips for Medical Device Development?

- Turnkey ownership – Concept-To-Manufacturing expertise for electromechanical devices
- Strategic platform partnerships to enable state of the art next-gen devices
- Engaged with World #3 in General Medicine
- Unmatched expertise on low latency video and on-board image processing using CUDA
- Development experience on HIPAA compliant solutions
- Award winning solutions for point of care applications

## About eInfochips

eInfochips, an Arrow company, is a global product innovation partner recognized for technology leadership by Gartner, Frost & Sullivan, ISG, IDC and Zinnov. With over 500+ products developed and 40M deployments in 140 countries, eInfochips continues to fuel technological innovations in multiple verticals. The company's service offerings include digital transformation and connected IoT solutions across various cloud platforms, including AWS and Azure.



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