# Services & Capabilities

## Product Development

**In-House Prototyping**
In-house lab facilities for rapid prototyping and testing of hardware circuits and PCBs. 3D printing capabilities for concept design of product enclosures.

**Program and Project Management**
Proactive refinement; planning and tracking of the scope, requirements, criteria for success, budgets, schedules, resources, issues, and results

**LocoLabs Product Reality Report™**
Provides an engineering system requirements review, a unit cost estimate, and an estimate of the development cost.

**Multidisciplinary Development**
Incorporating expertise from all required engineering disciplines, including systems, software, electrical, mechanical, industrial, manufacturing, and test

## Software Engineering

**APIs and Protocols**
Application-specific interfaces that meet all requirements, abstract functionality, and encapsulate implementation

**Board Support Packages**
Bootloaders, hardware-specific device drivers, device trees, kernel configuration, root filesystems, daemons, and utilities

**Programming Languages**
C/C++, C#, Java, Python, Assembly, Verilog, VHDL, HTML/CSS/JavaScript, and many others

**Layers of Software**
Software components for every layer, from firmware to drivers, daemons, middleware, applications, and GUIs

**Communications and Security**
Wired and wireless interfaces, numerous protocols, and both device-level and communications security

**Platform Software**
Wide range of target operating environments including Linux, FreeBSD, Android, RTOS, and event-driven bare-metal

**Target Architectures**
From 64-bit down to 8-bit, including ARM, x86, MIPS/PIC32, DSP, FPGA (custom), MSP430, AVR/AVR32, PIC, and 8051

**Domain Specific Abstraction**
Custom language, compiler and VM design, providing system independent platform for IoT development and deployment

**Analytics and Visualization**
Smart collection, forwarding, aggregating and analysis of IoT data, followed by impactful reporting and dashboarding

**Bring-up and Manufacturing**
Purpose-built firmware/software for board bring up, system validation, and manufacturing, not done as an afterthought

## Electrical and Mechanical Engineering

**High Density and High-Tech PCBs**
Using the latest PCB layout tools and techniques, we match your requirements with cost effective PCB technologies

**3D Enclosure Design**
PCB models integrated with the 3D enclosure to ensure fit and allow for additive (3D printing) and traditional manufacturing techniques

**High Speed & EMI/RFI Compliance**
Impedance control technologies to ensure performance of high-speed PCB, and EMI/RFI techniques to reduce noise

**Analog Simulation**
Software based mathematical simulation and modeling of electronic circuits and devices

**Power Supply & Battery Charging**
Linear, high speed switchers, popular battery chemistries

**PCB Design**
RF, Audio, Video, Low Noise, High Voltage and other custom applications

**3D PCB Modeling and Thermal Simulation**
Low cost realistic visualization, planning, and placement of all board elements reduces costly spins

**3D Printing**
High quality in-house 3D printing to enable rapid design validation and short run production

**FPGA and ASIC**
Including RTL design, ASIC verification, synthesis & STA, physical design, DFT and validation

**Hardening**
We specialize in hardening electronics and enclosures

## Manufacturing

**Rapid Prototyping**
Our Rev-Zero process produces quality quick-turn prototypes including material sourcing, and software bring-up

**Turnkey Volume Production**
No finger pointing. Procurement, fabrication, assembly, test and box build are managed by our team

**Test Fixtures**
We design, fabricate, troubleshoot and maintain test fixtures, interfaces, test software, and logging systems

**High-Volume Design**
Our designs are validated for volume, so our customers avoid costly rework, scrap, repair, and recall

**Testability Design**
Testability features designed into hardware to enable thorough manufacturing testing and design validation

**Accelerated Life Testing**
Temperature, humidity, voltage, shock, vibration, environmental testing validate the design and determine service life