



Engineering Pvt Ltd

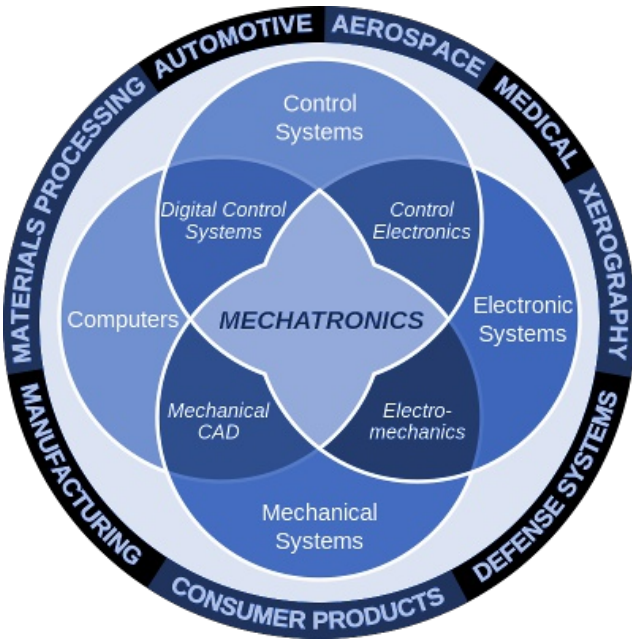
COMPANY PROFILE

Introduction

If you having a brilliant idea of creating an innovative electronic/electrial product and excited to bring the concept into reality? Whether you are individual entrepreneurs, hardware startups, or medium-to-large sized companies, here at Techmatiks, we engineer your idea into reality through circuits. As a leading original design manufacturer, we provide turnkey electronic

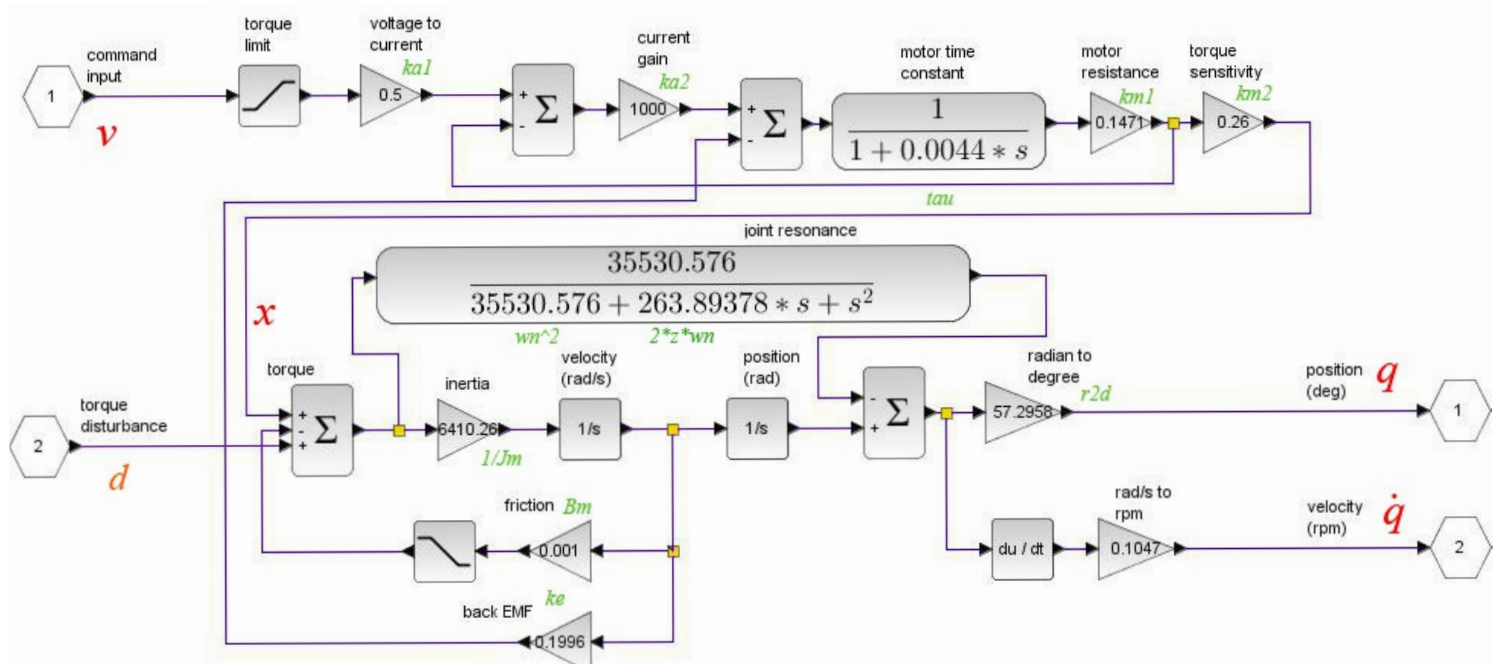
manufacturing services that covering product design and development, prototyping and mass production. From circuit design, industrial design, firmware and software development to electronic component sourcing, PCB fabrication and assembly, enclosure manufacturing, wire harness and control panel assembly, our services continues to full lifecycle of an electronic/electrical product.

SYSTEM DESIGN



In advanced sense, our specilisation roots from concept layout prepration, extracting analytical model of concept, developing appropriate control law simulating, making it as a circuit and stems as production of electronics/electrical system with post services etc. We start our process from preliminary to detailed modeling of system dynamics. We do simulation of system dynamics along with system identification of existing system/process. Evolve better control strategy and implement as code.

We implement it on embedded processor or on a dedicated control computer depending on complexity of control law. Final implementation will be on the existing plant with industry standard signal processing modules. Mostly we do with robust open source platform to cut down the cost. In short, we can implement any advanced control system to existing plant/process which bulls modern research & design centers, automation industries, chemical process plants, test centers etc. We also do intermediate services for industry by identifying correct signal processing & acqition modules, purchase and install it in existing systems or develop suitable control module. We can develop full system including mechanical accessories.

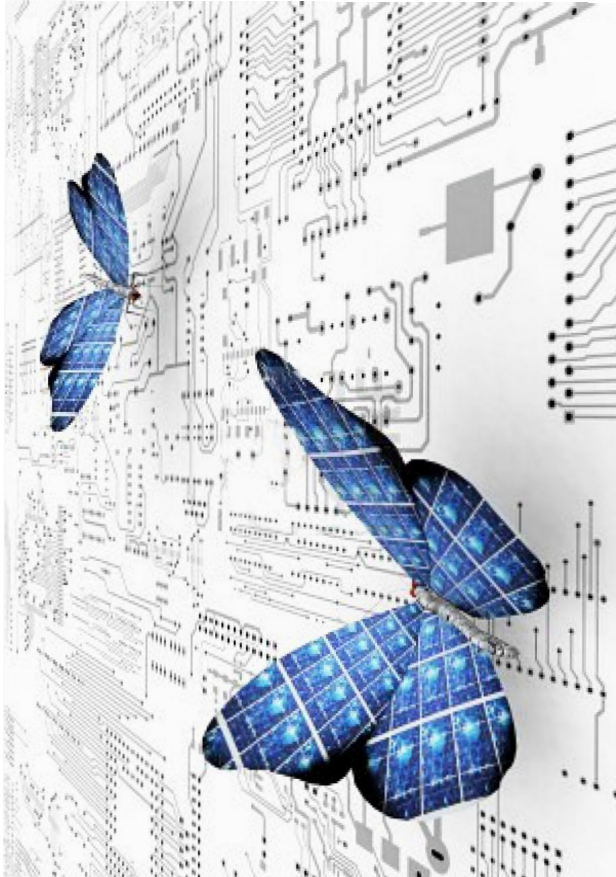


Design services

- Circuit design
- PCB design
- Engineering test solution
- Control system design/identification
- AI and IOT
- Software development
- Mechanical design/analysis



CIRCUIT DESIGN

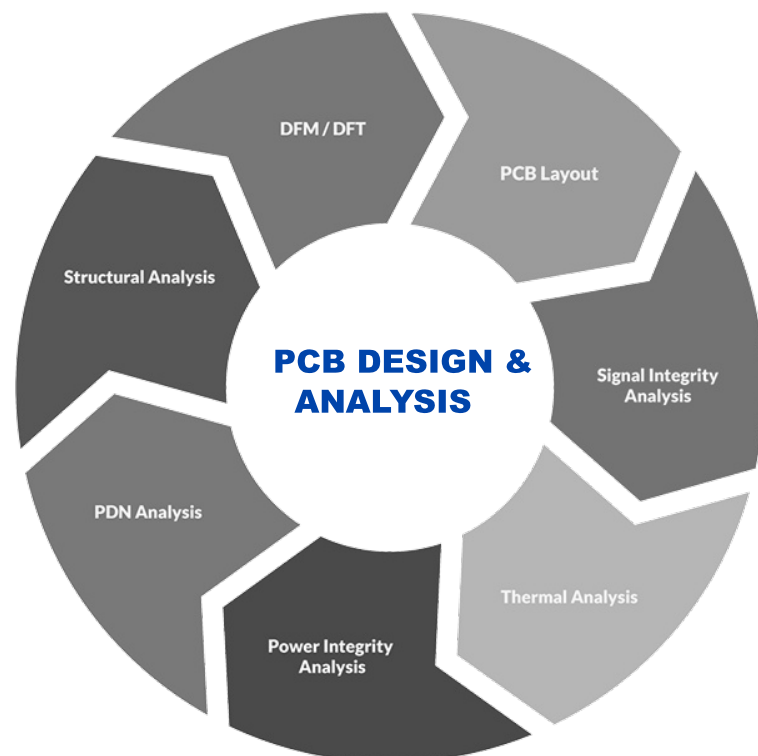


We design systems and boards based on analog circuits, digital circuits and subsystems, microprocessors, microcontrollers, FPGAs and DSPs. Our expertise includes

- BSP
- Embedded Linux based system development.
- Device driver development.
- Expertise on STM processors, PIC and ARM based microcontrollers.
- Displays and communication protocols
- DSP and algorithm development
- Image and video processing pipelines

We design single and multilayered PCBs, Graphic overlays for electronic enclosures etc. Our expertise on PCB design includes:

- Single and multilayer PCB's
- Heavy copper PCBs for high power application
- PCB's for Graphic overlays
- HDI PCB designs
- PCB design for signal integrity and impedance
- Ultra low EMI design





AI and IoT

Artificial intelligence (AI) is an area of computer science that aims at emphasizing the ability of machines to behave the way humans do which includes complex tasks such as observing, learning, planning and making decisions for problem-solving.

We at TECHMATIKS are future ready.

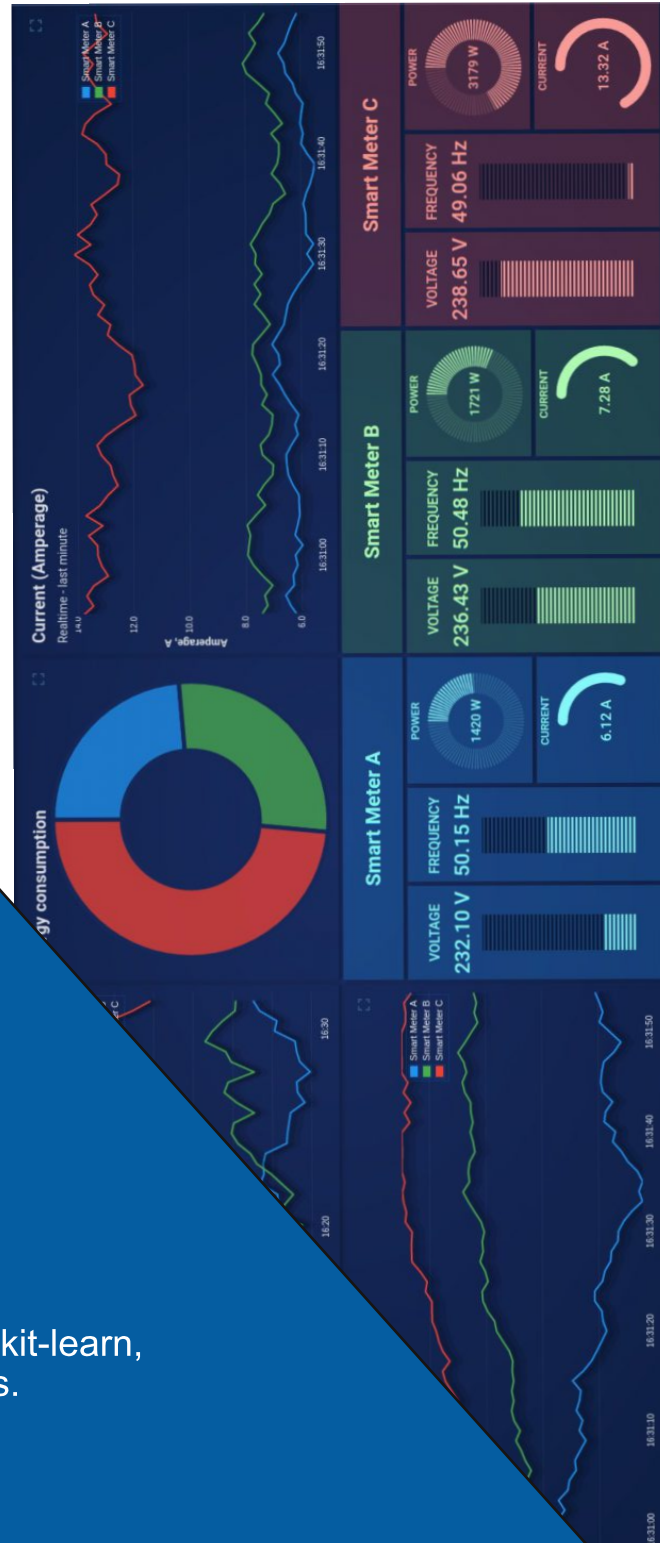
What we can do for AI?

- Deep learning, Data mining & statistical modelling
- Supervised/unsupervised learning
- Image processing and video analytics

We can implement AI using Theano, TensorFlow, Scikit-learn, Keras, Pytorch, Caffe and other open source libraries.

IOT is a core component of industrial transformation efforts across the globe, including Industry 4.0. Application of IoT can be in any field including agriculture, smart manufacturing, health care, medical, environment control products, home automation etc. The Internet of Things is at the centre of overlapping Internet-oriented (middleware), things-oriented (sensors) and semantic-oriented (knowledge) visions. IoT devices are gaining popularity due to its possibility to remotely monitor and control any devices.

We at Techmatiks can hardware, connectivity and user interface. This can be a Web interface, where collected data is represented as numbers or graphs, or it could be a mobile app installed on a smartphone to interpret data and issue alerts to the end users, depending on sensor environments.



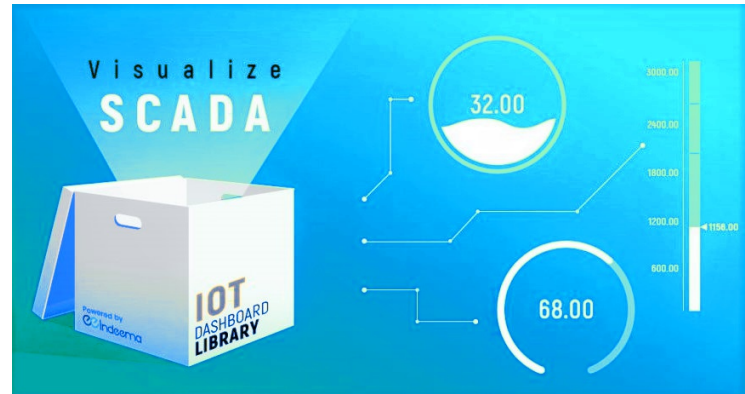
Software Development



We can design the aesthetic looking high performance User interfaces(UI) for both embedded processor and Data acquisition/control computer workstations. We mostly use open source tools C++ and Python for back end functionalities. We use QT for GUI development. Aesthetic and simple User interface functions



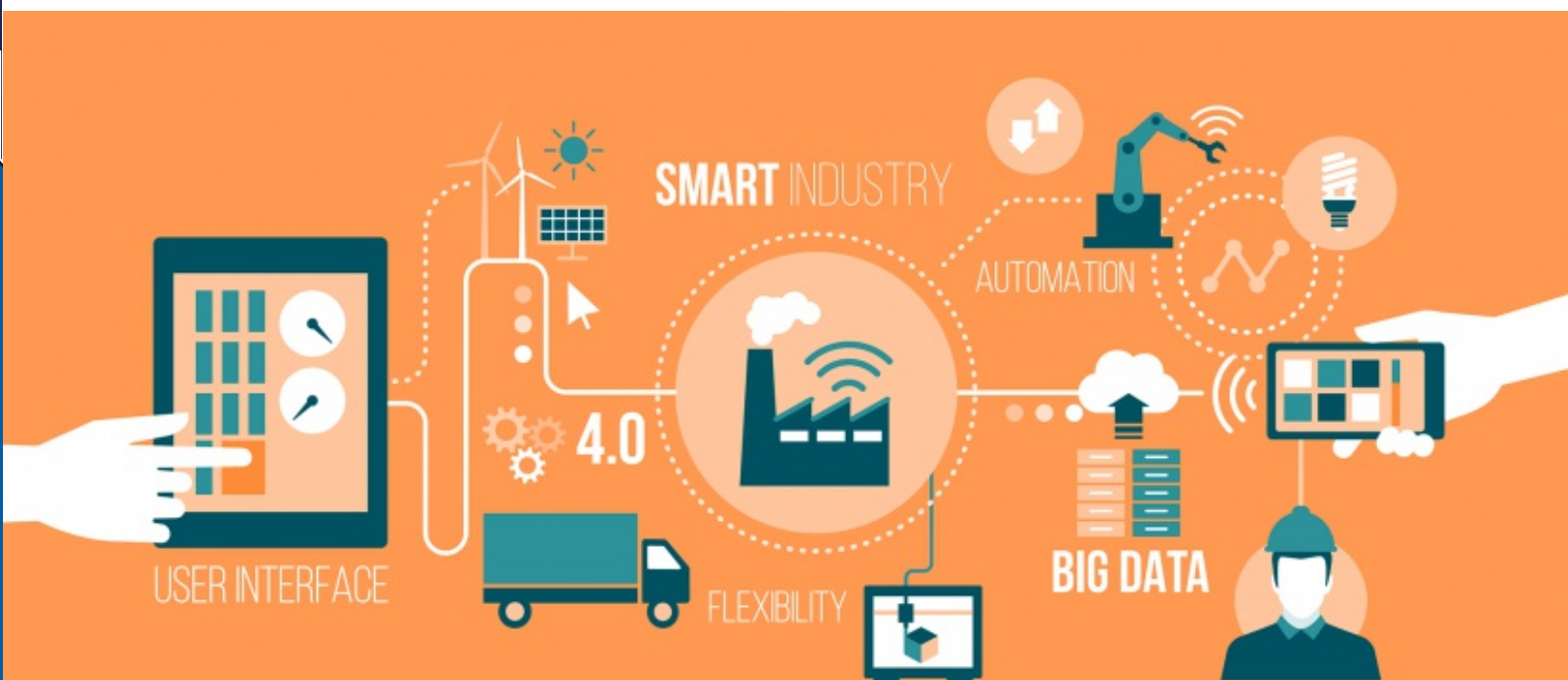
before we submit the UI to our developer for adding the functionality to the application. We can create an expressive User Interface for any of your industrial application.



can enhance value of your Engineered product/equipment tremendously. Typically, as a designer we would create artwork in imaging and design tools, such as Adobe Photoshop or GIMP and then send it to a developer for adding it to the application. With the Qt Bridge export tool, we can convert your artwork into Qt Quick files. We can import the files into Qt Design Studio for editing,

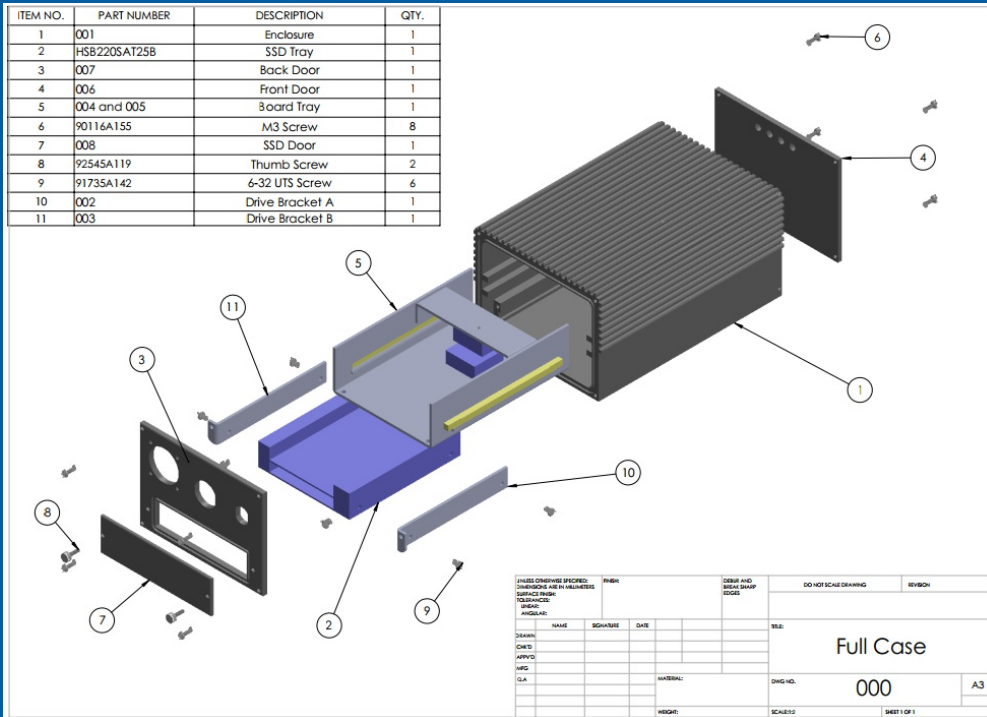
Web based Dashboards

We can create web based dash boards for control of embedded system from remote location with data visualization front end for engineering test centers such as automotive test centers, pump test facilities. We use HTML, JAVA, Node.js, electron.JS, Python etc for such applications. We can Build cross platform desktop apps with JavaScript, HTML, and CSS using electron.js.



Mechanical design & analysis

Our Mechanical Design team has expertise to develop rugged custom enclosures for a wide variety of electronics including handheld devices, ruggedized enclosure for aerospace applications, sensors, automotive, electrical control panel etc.. The project steps start with your ideas and visions. This turns into an industrial design, followed by detailed mechanical drawings and then rapid prototypes



Our Expertise includes:

- CAD modelling
- Drafting and detailing
- Stack-up analysis
- Legacy data conversion / migration
- Product configuration management
- Concept Design and Styling
- Cast / Forged / Plastic / Sheet Metal Component Design
- Parametric Design of Systems and Sub-Systems
- Design for Manufacturing / Assembly
- Mechanism Study, Simulation & Digital Mock-ups

Aesthetic design

It is extremely important for any Manufacturer to have good enclosure to make their product elegant and professional look for marketability. TECHMATIKS specializes in apt label design for both electronic enclosures and mechatronic systems. We design graphic overlay to suit the enclosures. In overall sense, aesthetic design contributes the product to become more robust. TECHMATIKS takes care of aesthetic design of product right from preliminary stage of the design.

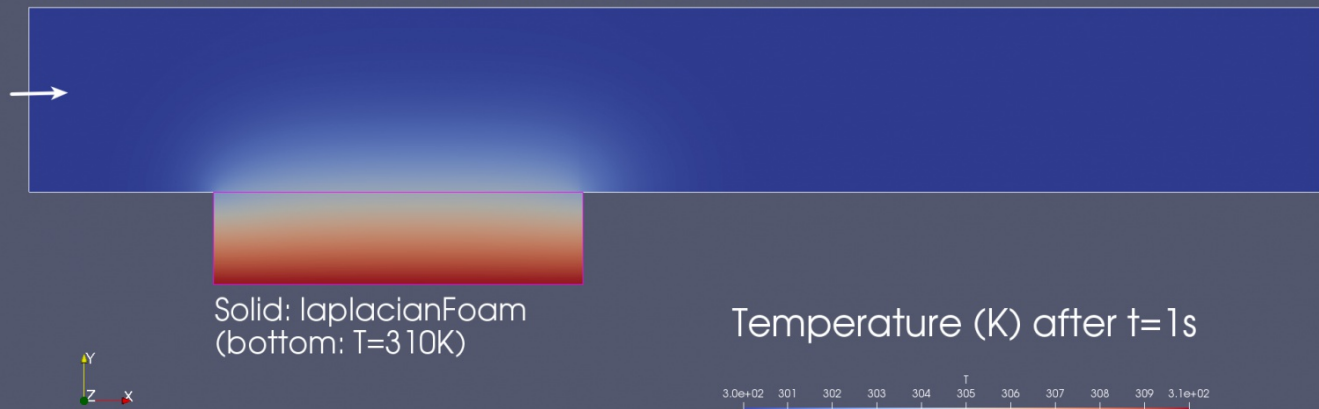


Thermal design & analysis

Thermal management has become a critical element in today's electronic design, as more compact designs have led to greater difficulty in removing heat from the system. In order to keep the components within their safe operating region, the operating temperature of the components must not exceed the manufacturer specified maximum temperature. A reduction in operating temperature increases the component life expectancy and therefore increases the reliability of the system. We at TECHMATIKS can handle thermal problems smartly. We use open-source based solutions viz. OpenFOAM, Code_ASTER etc. extensively

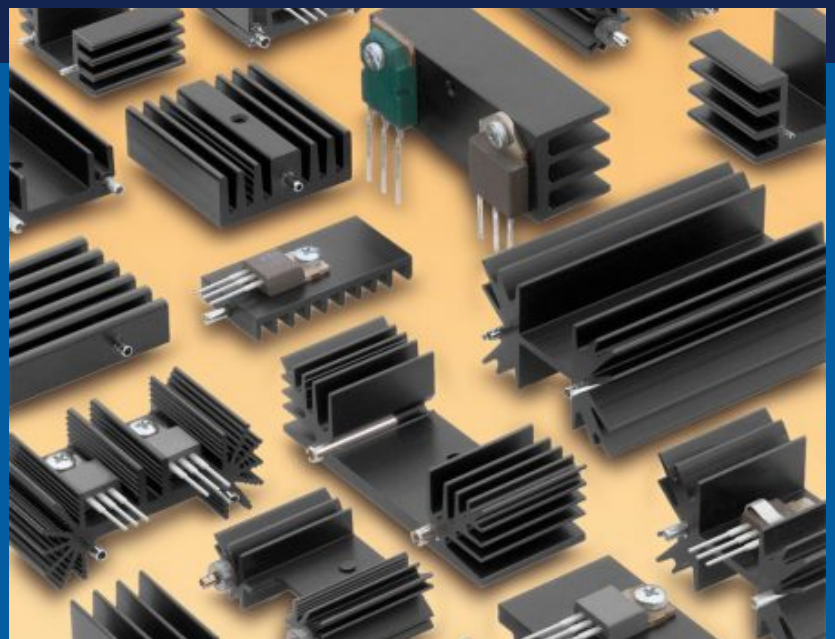
Flow over a heated flat plate

Fluid: buoyantPimpleFoam (inlet: $T=300\text{K}$, $u=0.1\text{m/s}$)



What we do?

- Natural convection analysis
- Forced convection analysis
- Heat pipe design
- Selection of proper heat sinks
- Effective enclosure design for meeting temperature requirements



PCB Assembly Service



We offer low, medium to high volume, high mix, PCBA services and end-to-end integration services for products in industries including life-science, pharmaceutical, power management, medical device, test system developer, Production Equipment manufacturer, alternative energy, automotive, consumer electronics, etc. With our exceptional turnkey manufacturing services, TECHMATIKS produces and fully integrates PCB assemblies for OEMs seeking a one-stop manufacturing solution.

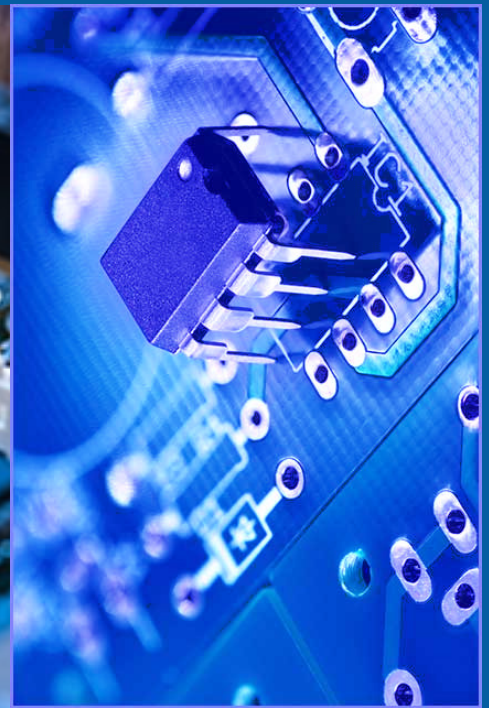
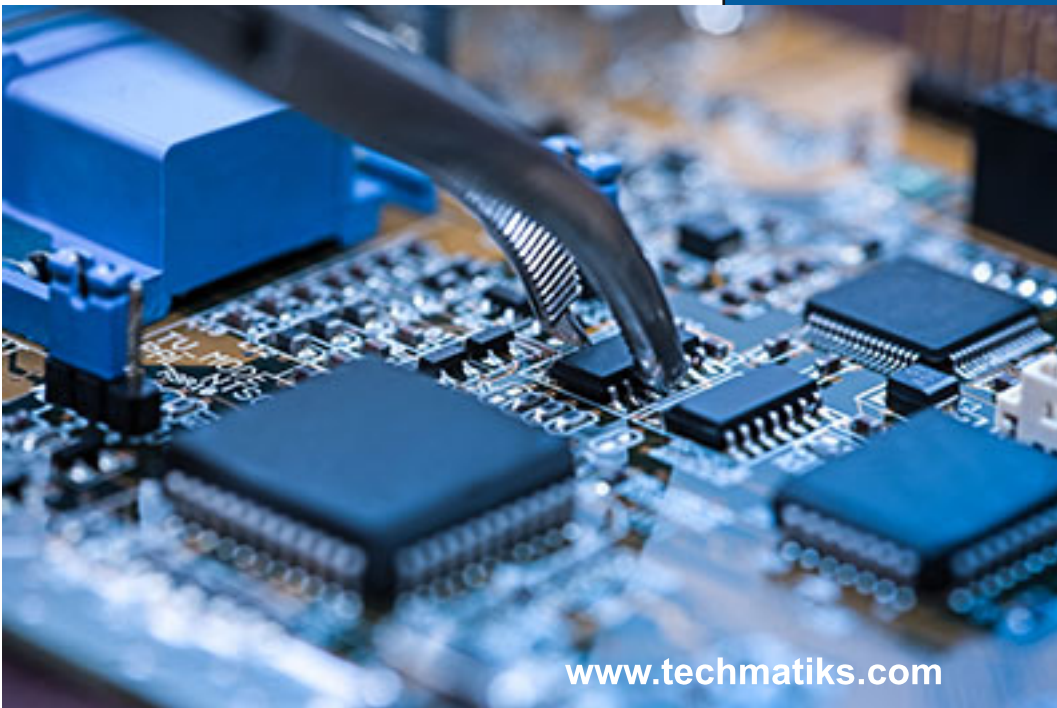
PCBA services includes :

- Component stuffing
- Wave soldering of through hole PCB's
- PICK and PLACE of SMD components
- Gluing for mixed components board
- Visual Quality testing
- Powerup and functional testing
- Sourcing of components for PCB assembly
- Component preparation for PCB assembly

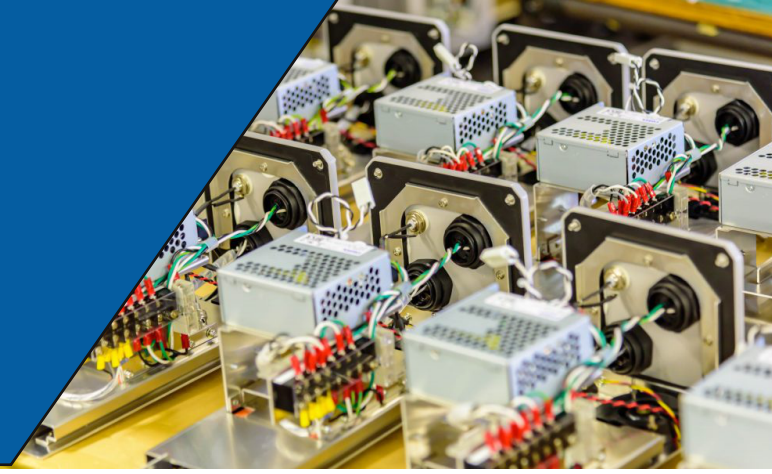
Small to medium volume production



SMD and Through hole components



Box Build Assembly Service

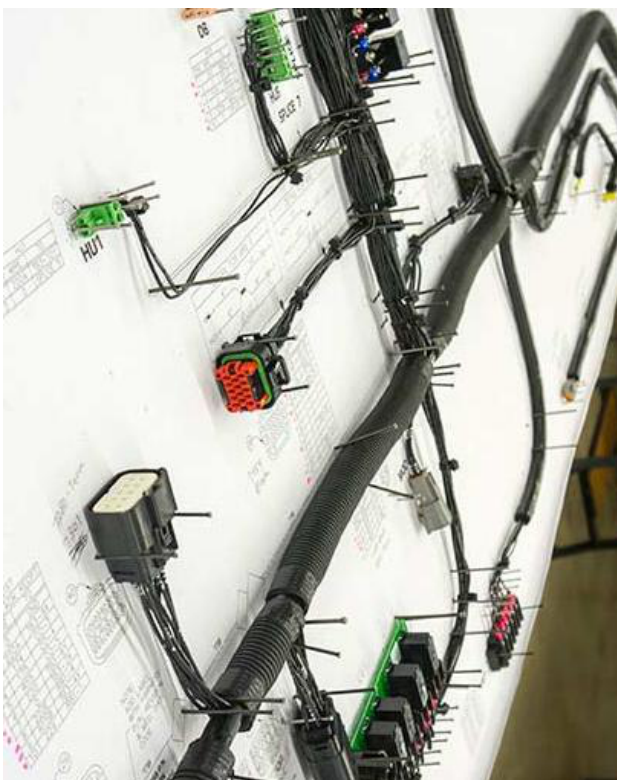
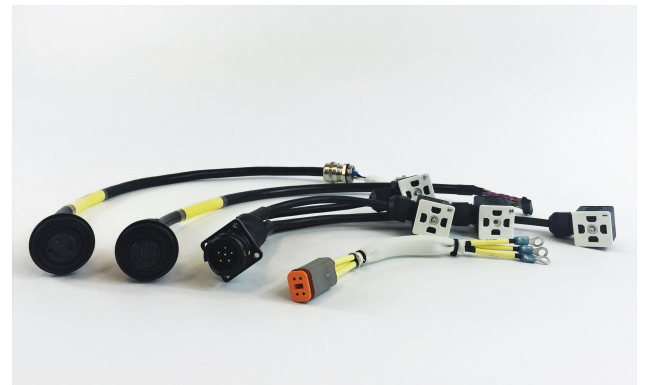


Regardless of size, quantity or sophistication, we can build electronic and mechanical samples, prototypes and sub-assemblies. We do take care for quality at all the stages of manufacturing right from PCB design & assembly to final system erection. Our service continues perpetually which makes system life infinite. Box build may require a custom enclosure, custom membrane switch, graphics and special packaging for shipping all of which can be designed and sourced by us. We constantly upgrade the system time to time to cope with future trends

Our service includes:

- Machining, component placement, soldering, wiring and terminating
- Potting, encapsulating and gluing
- Heat shrinking, screening and conformal coating
- Wire wrapping, plumbing and mechanical construction
- Software Loading
- Product labelling and component serialisation
- Functionality testing

Wiring Harness



We do PCB design & components assembly, wire harness and full system assembly. Our approach is structured for cabling which involves designing cable runs and connections such as to facilitate trouble shooting and planning for future changes. System Perfection is not complete unless the cable routing and positioning of functional modules is structured.

Cable assembly service includes :

- Cutting, stripping, tinning, crimping, terminating, identifying, bunching, and forming
- Routing, looming and lacing of complex harness
- Power, signal and control cables Ribbon, IDC, co-axial and patch leads
- Compliance testing for continuity, hi-pot, short circuit, megger etc

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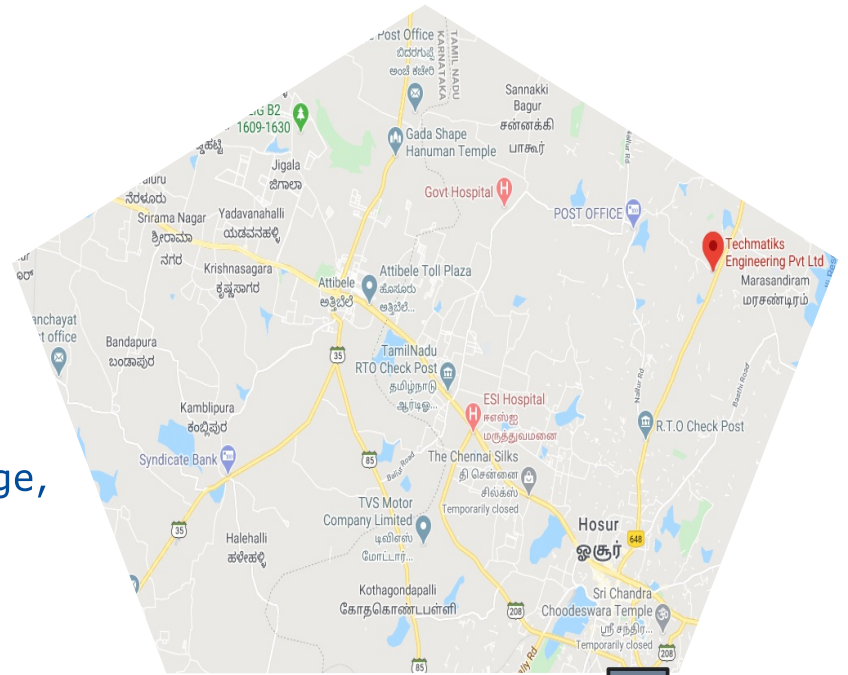


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