

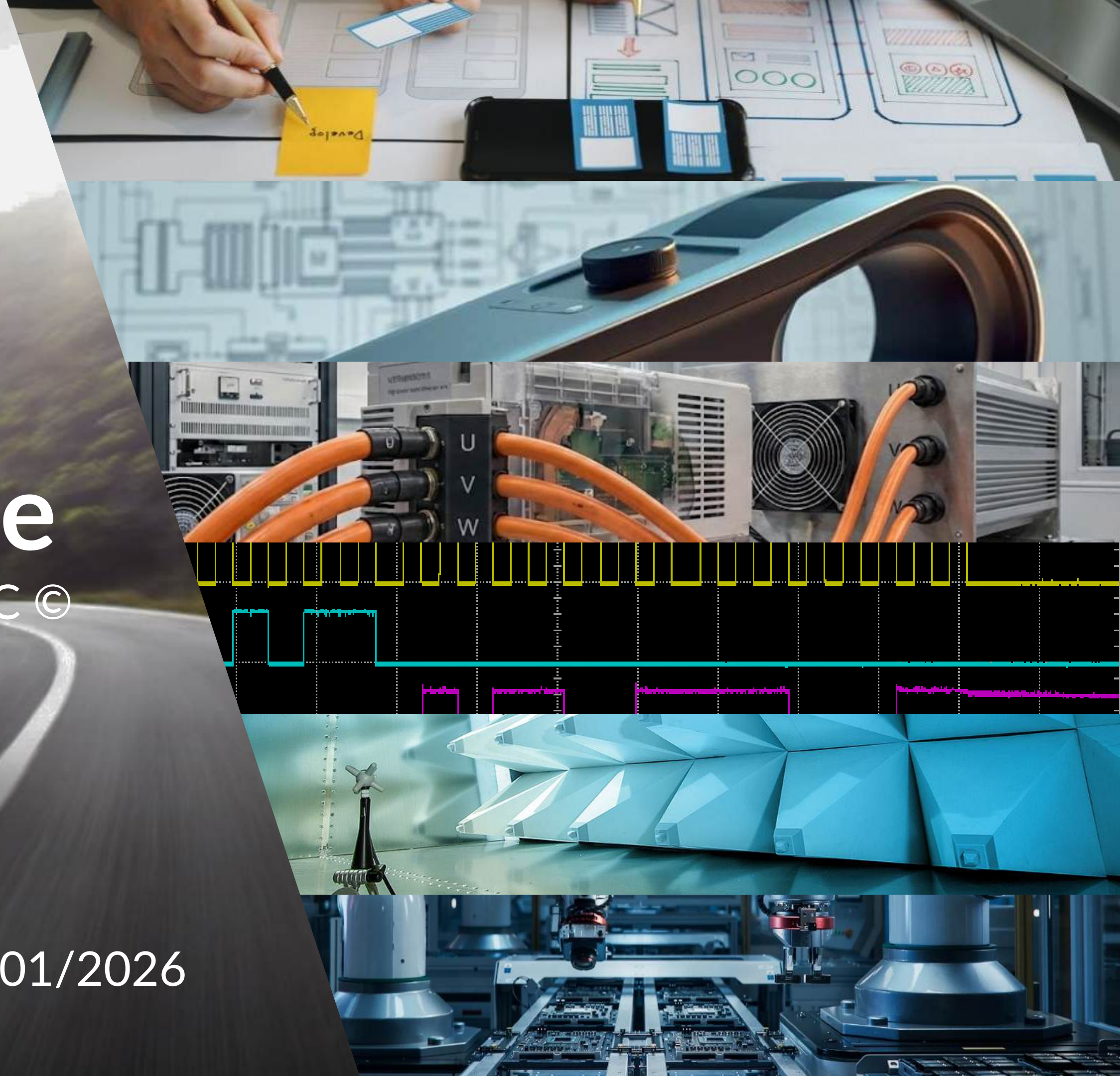


EM Engineering Solutions LLC
Innovators of Turn-Key Engineering Solutions

Company Profile

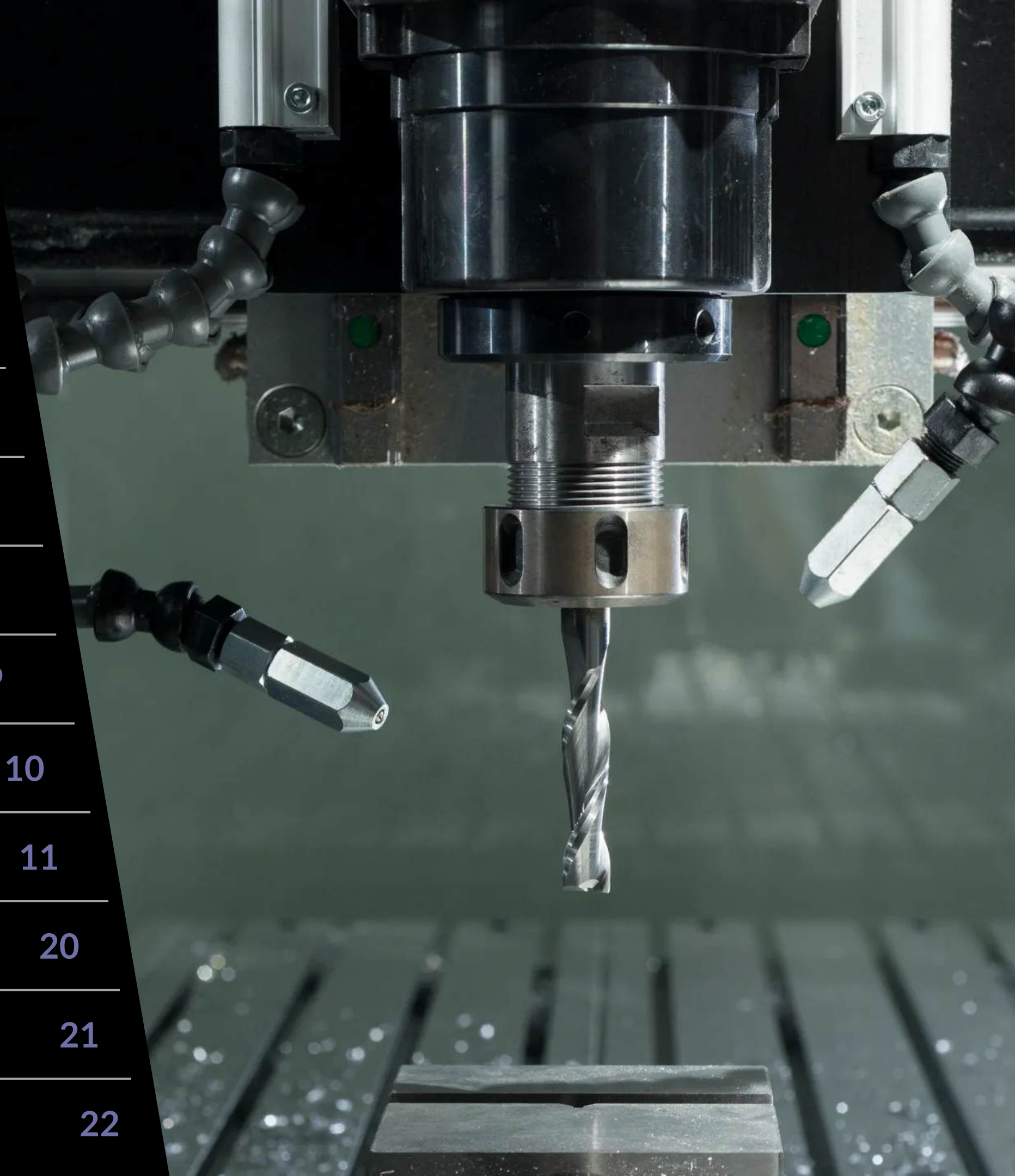
2026 EM Engineering Solutions LLC ©

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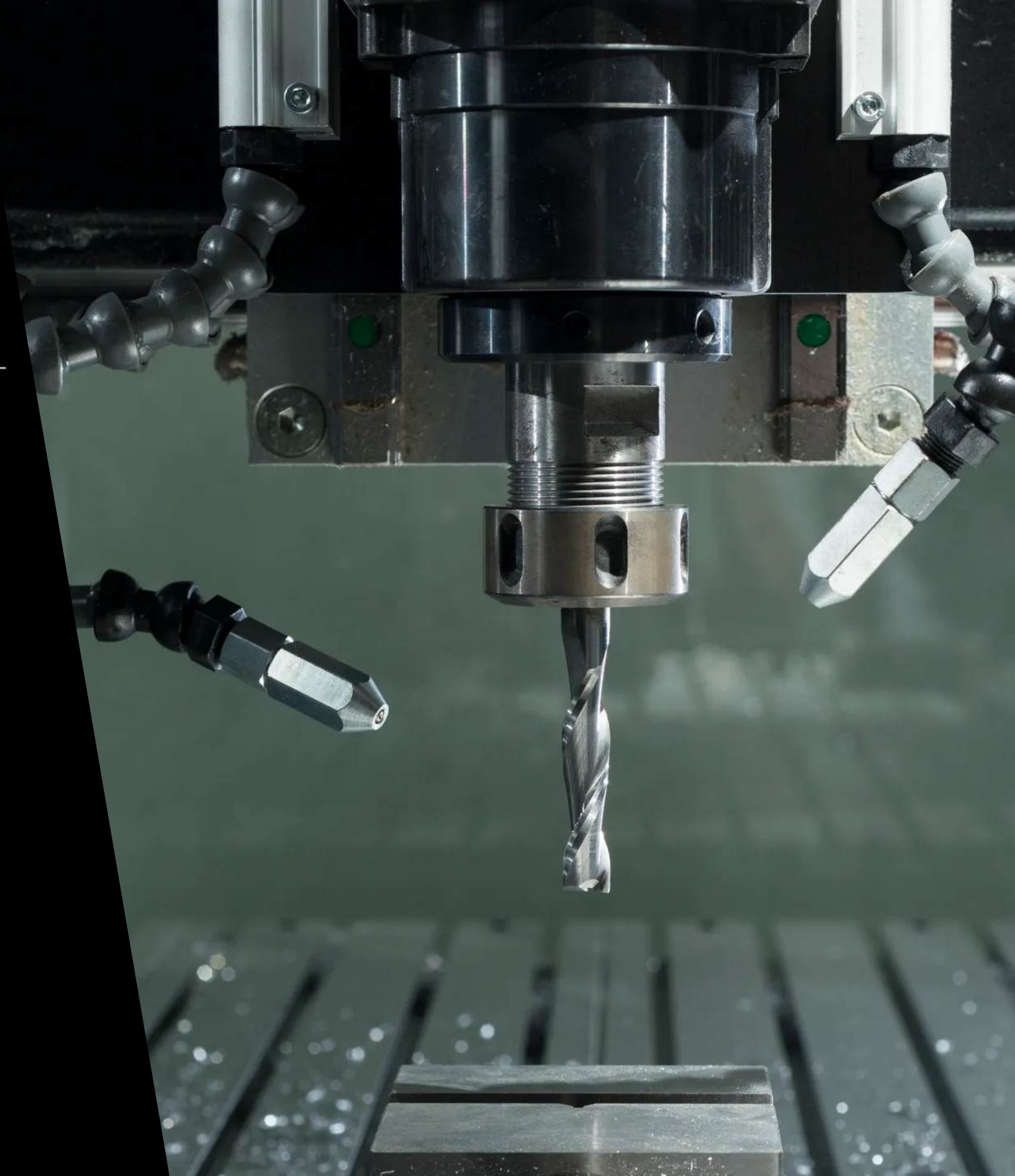
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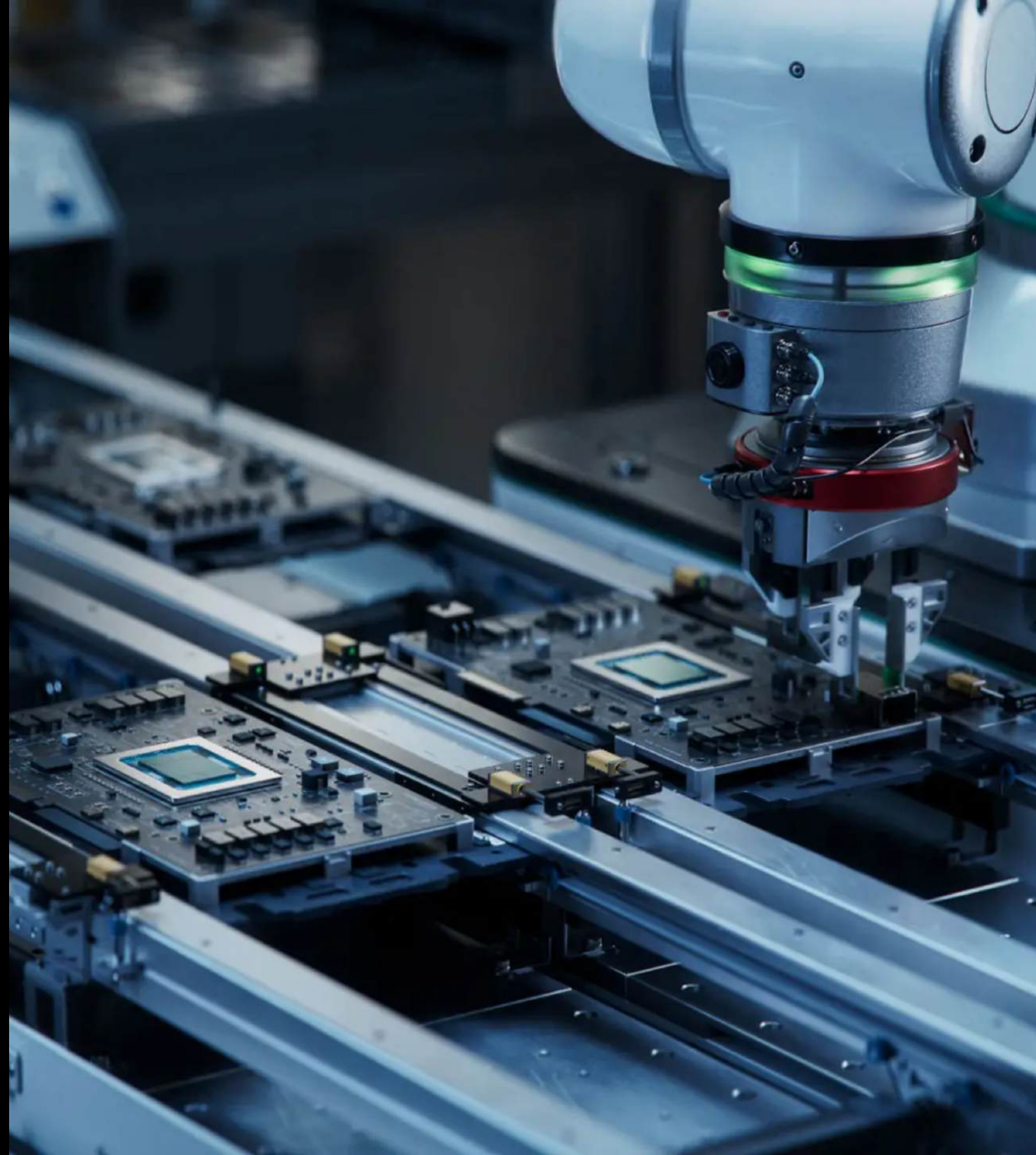
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WHO WE ARE?

EM Engineering Solutions LLC is a full-service engineering and product design firm, specializing in eMobility, consumer, and industrial product design, providing contract turnkey engineering solutions and services to a wide variety of industries, servicing funded ventures, small businesses, and startups to Fortune 500 firms worldwide.



Our Mission

Our goal is to provide comprehensive turnkey engineering solutions under our client-centric approach, ensuring transparency and intrinsic value-generation is upheld across the design processes from conceptualization to production, ending with a product that works as simply as turning a key. We dedicate ourselves to creating your visions through our products with the utmost quality and professionalism

Our Vision

Our vision is to create a world where the use of LEVs and BEVs is sustainably supported by proven, researched technologies available to the public. Similarly, we aim to bridge the gap between research and market-ready products, continually integrating technological advancements in our designs, ensuring value generation across the developmental process. We prioritize our in-depth industry research to complete our vision and give back to our communities.



OUR CORE VALUES



Commitment to Quality



Turnkey Ecosystems



Integrity & Transparency



Innovation & Research



Always Improving



Safety & Ethics



Accountability & Professionalism



Client-Centered Approach



OUR HISTORY

How EM has changed over time

2018

EM Was Founded

EM was founded in 2018 as a research organization, researching and developing LEV systems, vehicles, & components. EM researched alongside like-minded firms, collaboratively researching LEVs to promote sustainable transportation technologies.

2020

EM Moves Into Consulting

Via its in-depth research experience, EM moved into consulting, providing firms with solutions and the knowledge we gained in the LEV market. The start of concept vehicle design and production for *Project Raptor*.

2022

EM Moves Into Contract Engineering Design

Throughout the process of research, design, and development of Project Raptor and other LEV systems, EM gained vital industry knowledge and experience in industrial design and DFM, allowing EM to move into full contract engineering design for mechanical and electrical applications.

2025

Service Expansion

EM expands into new markets and industries, expanding our capabilities, services, and offered solutions, aiming to provide our clients with the best contract design solution with proven engineered technologies.

OUR MARKET

1,000,000

New Product Development (NPD) Space

50,000

Legacy Product Modernization

30,000

General Contract Engineering Services Industry

\$1,282B

2026 Contract Engineering Services Market Share

4.8%

Compound Annual Growth Rate (CAGR)



OUR FUTURE

EM's plans for the future

2026

Physical Expansion

EM expands our engineering team, moving into new warehouses and offices to allow for the expansion of production and offered services. EM hopes to move more production domestically, creating more jobs in the US and becoming a turning force for the US Economy.

2028

Divisions of Markets

Throughout the process of research, design, and development of Project Raptor and other LEV systems, EM gained vital industry knowledge and experience in industrial design and DFM, allowing EM to move into full contract engineering design for mechanical and electrical applications.

2030

OEM Manufacturing Status

As part of our 10-year plan, by 2030, EM hopes to have entered the market as a fully-fledged OEM manufacturer of electric vehicles and light electric vehicles with the EM-600 concept vehicle finishing production, achieving worldwide recognition of services where EM is a key player in the contract engineering service provider market.

2030+

Market Adaptation & New Ventures

EM's future is bright and flourishing ever before us. While we love to plan ahead, we understand that changing market condition and new opportunities present themselves everyday. As stewards of a technological innovation, we will continue in the direction of our forward momentum.

INTERNAL RESEARCH

Implementations of 8+ years of dedicated industry research applied to our processes

Starting in 2024, EM started the process of continually implementing its 8+ years of commitment to excellence in internal research into a dedicated article system, offering deep dives into various topics and solutions offered by EM and how current industry adversities are solved by EM. EM's goal for these articles is to promote the advancements of engineering technologies in their respective fields, allowing for the spread of information to reach all audiences of all ages, and assisting in understanding our services. EM firmly believes in promoting young minds in STEM, asserting their value in the industry.



OUR COMPREHENSIVE ENGINEERING SERVICES PORTFOLIO

Tailored turnkey engineering solutions to your visions



ENGINEERING CONSULTING & PROJECT MANAGEMENT

Getting your deliverables done right

BOM Creation & Management

Mechanical System Design Analyses

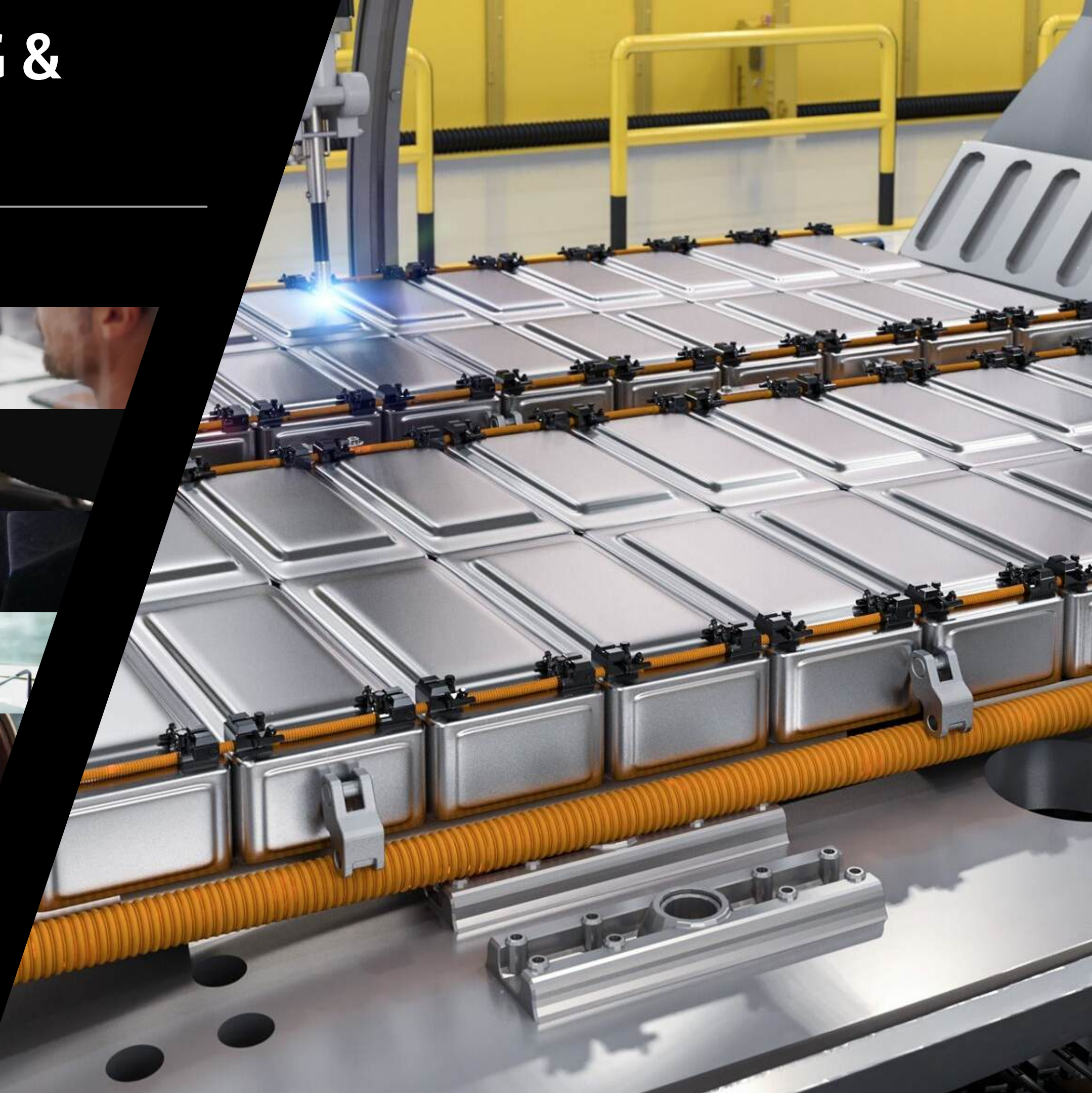
PCB & Circuit Design Analyses

Project Management Solutions

Product Design Analyses (DFMEA)

Product Lifecycle Management & Feasibility Analyses

Root Cause Analysis



MECHANICAL DESIGN SOLUTIONS

Designing engineered solutions to fixture, support, & assemble.



3D CAD & Product Design
Services



DFx. Engineering Solutions




Thermodynamic Analyses



Finite Element Analyses (FEA)
Validation



Tolerance Stackup Analysis (TA)



Mold Flow & Manufacturability
Optimization Analyses



Generative Design & Geometric
Optimization



Sheet Metal Design Solutions



2D GD&T Industrial &
Professional Drafting



Reverse Engineering Solutions



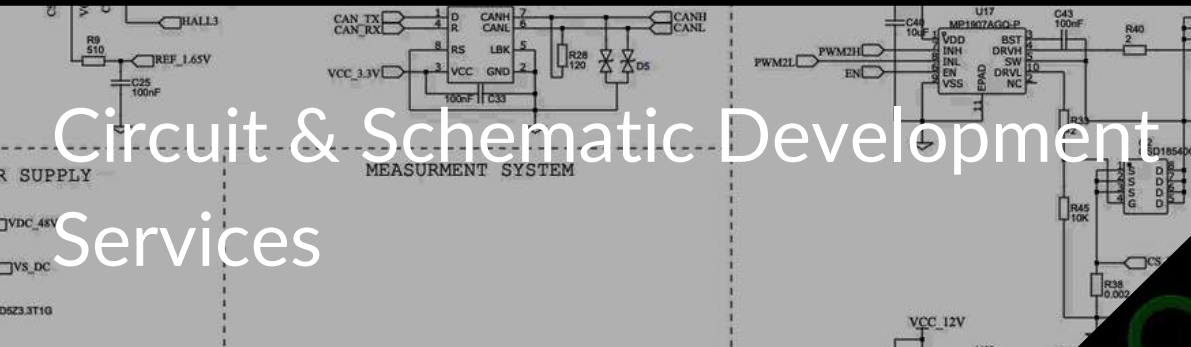
Electro-Mechanical System
Design



Industrial Systems Engineering

ELECTRICAL DESIGN SOLUTIONS

Communication and power management at ease



Circuit & Schematic Development Services

The image shows a detailed circuit schematic with various components like resistors, capacitors, and integrated circuits. Labels include 'MEASUREMENT SYSTEM', 'VCC_3.3V', 'VCC_12V', and 'REF_1.65V'.



PCB Design & Layout Solutions

The image displays a 3D perspective of a PCB layout with various colored traces and components. A component labeled 'C20' is highlighted in blue.



SPICE & Circuit Simulation Services

The image shows a circuit simulation waveform plot with a green signal line oscillating on a grid.



Reverse Engineering Solutions

The image shows a colorful, abstract representation of a circuit layout, possibly a reverse-engineered design, with various colored traces and components.




SI/PI, Crosstalk, & Impedance Analyses

The image shows a 3D perspective of a PCB layout with various colored traces and components, similar to the PCB Design & Layout Solutions image.



EMI Optimization & Analysis Solutions

The image shows a 3D perspective of a PCB layout with various colored traces and components, similar to the PCB Design & Layout Solutions image.



Electrothermal & Electronics Cooling Analyses

The image shows a 3D perspective of a PCB layout with various colored traces and components, similar to the PCB Design & Layout Solutions image.



Virtual Compliance & Certification Testing

The image shows a 3D perspective of a PCB layout with various colored traces and components, similar to the PCB Design & Layout Solutions image.



Electromechanical System Optimization & Analyses

The image shows a 3D perspective of a PCB layout with various colored traces and components, similar to the PCB Design & Layout Solutions image.



Turnkey Battery Systems Development

The image shows a close-up of a battery pack with multiple cells and connectors.



Power Electronics Engineering

The image shows a close-up of a power electronics component, possibly a transformer or inductor, with copper windings.



Automotive / LEV Electrical System Design

The image shows a close-up of an automotive electrical system component, possibly a battery or power source.

SOFTWARE & FIRMWARE ENGINEERING SERVICES

Integrating user-experience and functionality cohesively

C/C+/Assembly Embedded Firmware Development

Hardware/Software Debugging & Troubleshooting

Software Product Development & Documentation

Mobile Application Development

Application Dashboard Deployment

RTOS Development

UX/UI Design

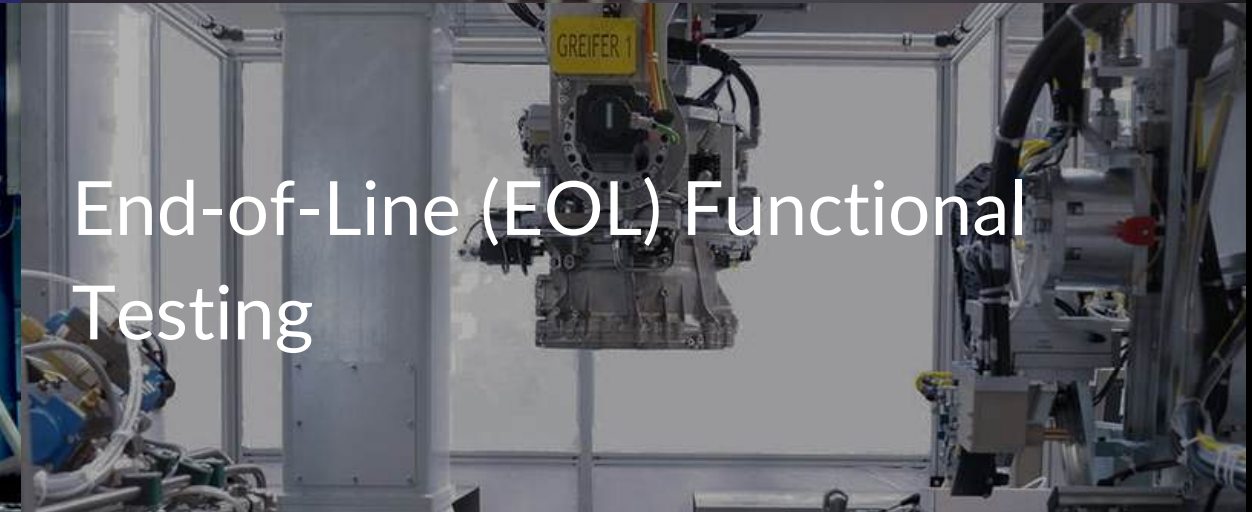
HMI, AI, & Cloud Development Services

Robotics & IoT Development Services



MECHANICAL TESTING & VALIDATION SOLUTIONS

Ensuring design intent in real-world scenarios



ELECTRICAL TESTING & VALIDATION SOLUTIONS

Validating design resilience and integrity

Electronics Lab Bench Testing

Signal / Power Integrity Testing

EMI/EMC/ESD Testing

Battery Performance Testing

Sensor Calibration & Accuracy Validation

Fault Injection & Protection Circuit Validation

Production Fixture Design & End-of-Line (EOL) Testing

Pre-Compliance Testing

Analog-to-Digital Migration Validation

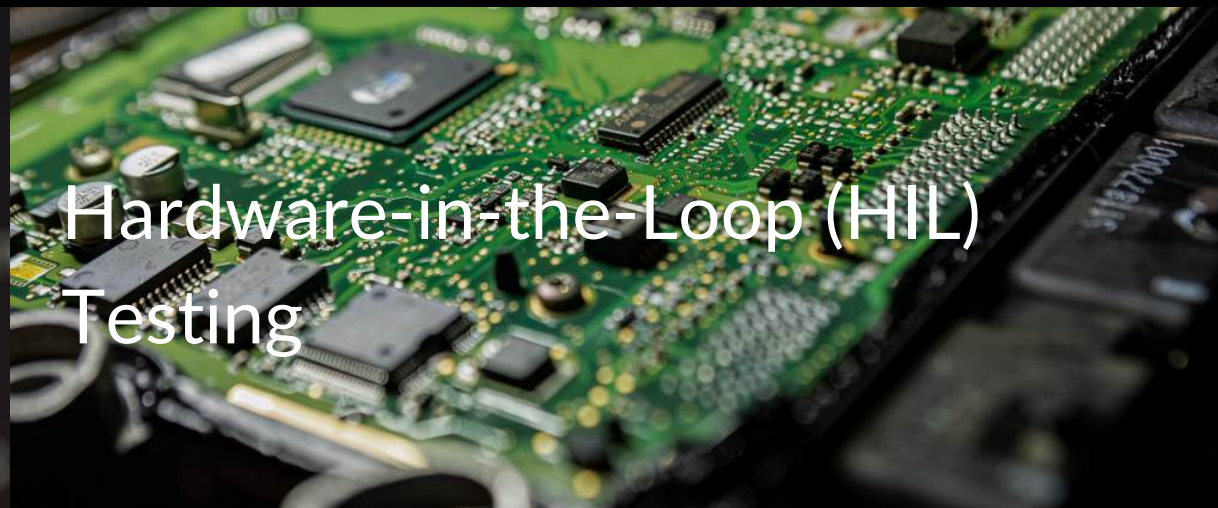
SOFTWARE TESTING & VALIDATION SOLUTIONS

Functionally validating tomorrow's solutions to today's problems

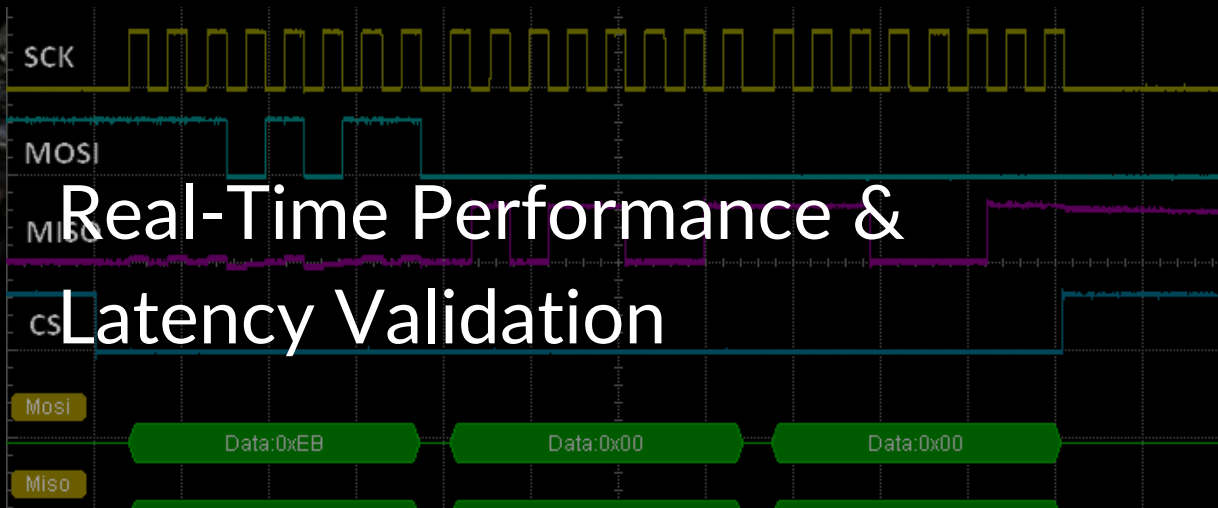


```
54  
55 int summary(void *barg, void *arg  
56 {  
57     int *board = (int *)barg;  
58     int *ret = (int *)arg;  
59     *ret = *board;  
60     return *ret;  
}
```

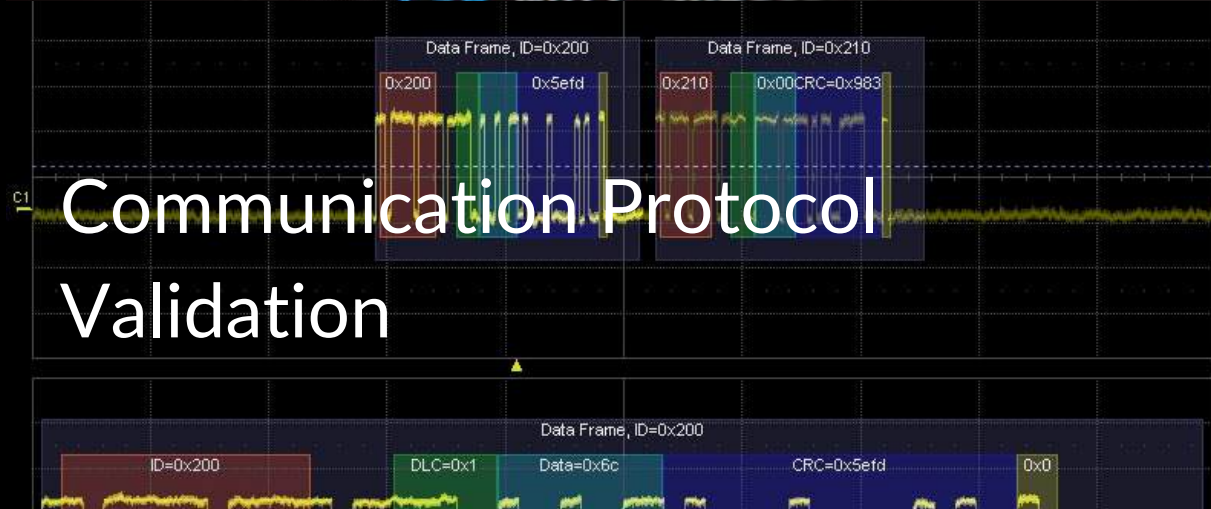
Firmware Unit Testing & Integration Testing



Hardware-in-the-Loop (HIL) Testing



Real-Time Performance & Latency Validation



Communication Protocol Validation



```
incher - Running 1 instances of WebDriver  
:al - Starting selenium standalone server...  
:al - Selenium standalone server started at http://192.168.170.49:52200/wd/hub  
incher - Unable to create new service: ChromeDriverService  
ion: '3.141.59', revision: 'e82be7d358', time: '2018-11-14T08:25:53'  
it: 'TSLC0764', ip: '192.168.170.49', os.name: 'Windows 10', os.arch: 'amd64', os.version: '10.0', java.version: '1.8.0_221'  
lver.version: unknown  
incher - SessionNotCreatedError: Unable to create new service: ChromeDriverService  
ion: '3.141.59', revision: 'e82be7d358', time: '2018-11-14T08:25:53'  
it: 'TSLC0764', ip: '192.168.170.49', os.name: 'Windows 10', os.arch: 'amd64', os.version: '10.0', java.version: '1.8.0_221'  
lver.version: unknown  
eckLegCyR...  
Response (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\node_modules\selenium-webdriver\lib\http.js:509:13)  
en.response (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\node_modules\selenium-webdriver\lib\http.js:441:30)  
tickCallback (internal/process/next_tick.js:68:7)  
rver.createSession()  
createSession (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\node_modules\selenium-webdriver\lib\webdriver.js:769:24)  
lver (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\node_modules\selenium-webdriver\index.js:170:33)  
uild (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\node_modules\protractor\builder\driverProvider.js:635:14)  
NewDriver (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\builder\driverProviders\driverProvider.js:53:33)  
reateBrowser (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\builder\runner.js:195:43)  
en (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\builder\runner.js:339:29)  
d (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\node_modules\q\q.js:834:54)  
dileep_r\AppData\Roaming\npm\node_modules\protractor\node_modules\q\q.js:863:30  
romise.promiseDispatch (C:\Users\dileep_r\AppData\Roaming\npm\node_modules\protractor\node_modules\q\q.js:796:13)  
dileep_r\AppData\Roaming\npm\node_modules\protractor\node_modules\q\q.js:604:44  
incher - Process exited with error code 199
```

Edge Case & Exception Handling Testing



Embedded System Stress Testing



Automated Test Framework Development



Cloud & Backend System Testing



Mobile App Validation

MANUFACTURING & FABRICATION SOLUTIONS

Transforming your ideas into reality

Additive Manufacturing Solutions

PCB Manufacturing Solutions

PCB Assembly Services

SMT Stenciling Solutions

Multi-Axis CNC Milling Services

CNC Lathe & Turning Solutions

Laser / WaterJet / Plasma Cutting Services

Sheet Metal & Pipe Bending & Forming Solutions

Injection Molding Services

Blow Molding Solutions

Metal & Multimaterial Casting Solutions

Metal Profile Extrusion Services

INTERNAL PRODUCTS

Pre-Built EM Products solving issues in the LEV market

EM W-BMS Modular Battery Systems

EM Power Supply Family of Systems

EM Colorwave™ Display Module

EM VORTEX Peripheral Controller Family of Systems & Breakout Components

EM One™ EcoSystem App

EM-Gates © CarbonX™ Belt Drive LEV Transmissions



ENGINEERING TOOLS & SOFTWARE

Engineering Tools & Softwares developed by EM using internal research for all audiences

IPC-2221 Advanced Copper Trace & Pour Calculator

Development paused in 2026

More applications are currently in development to suit all of our engineering solutions & processes.



CONCEPT VEHICLES

Concept vehicles showcasing current research and developmental efforts by EM

Project Raptor, debuted in 2023, is the accumulative effort of 4 years of research and development in the Light Electric Vehicle (LEV) field. Its development has foreseen numerous industry changes, implementing and developing new in-house technologies, paving the way for the industry and creating a pathway for continued success in innovation at EM. It is with great pleasure that we have seen this project from conceptualization at the dawn of EM to full-scale production. The goal of Project Raptor is to showcase what is possible with the current LEV technologies, making way for a new era of vehicles to diminish the current adversities we face in operation-related emissions from ICE vehicles. Via our success in industry-leading research, the path that Project Raptor has led will lead to a decrease in total CO₂e Emissions (gCO₂e/mi) by 60%, reducing congestion by a further 40%.

Additionally: EM-600 Concept Vehicle Coming Est. 2026-2030



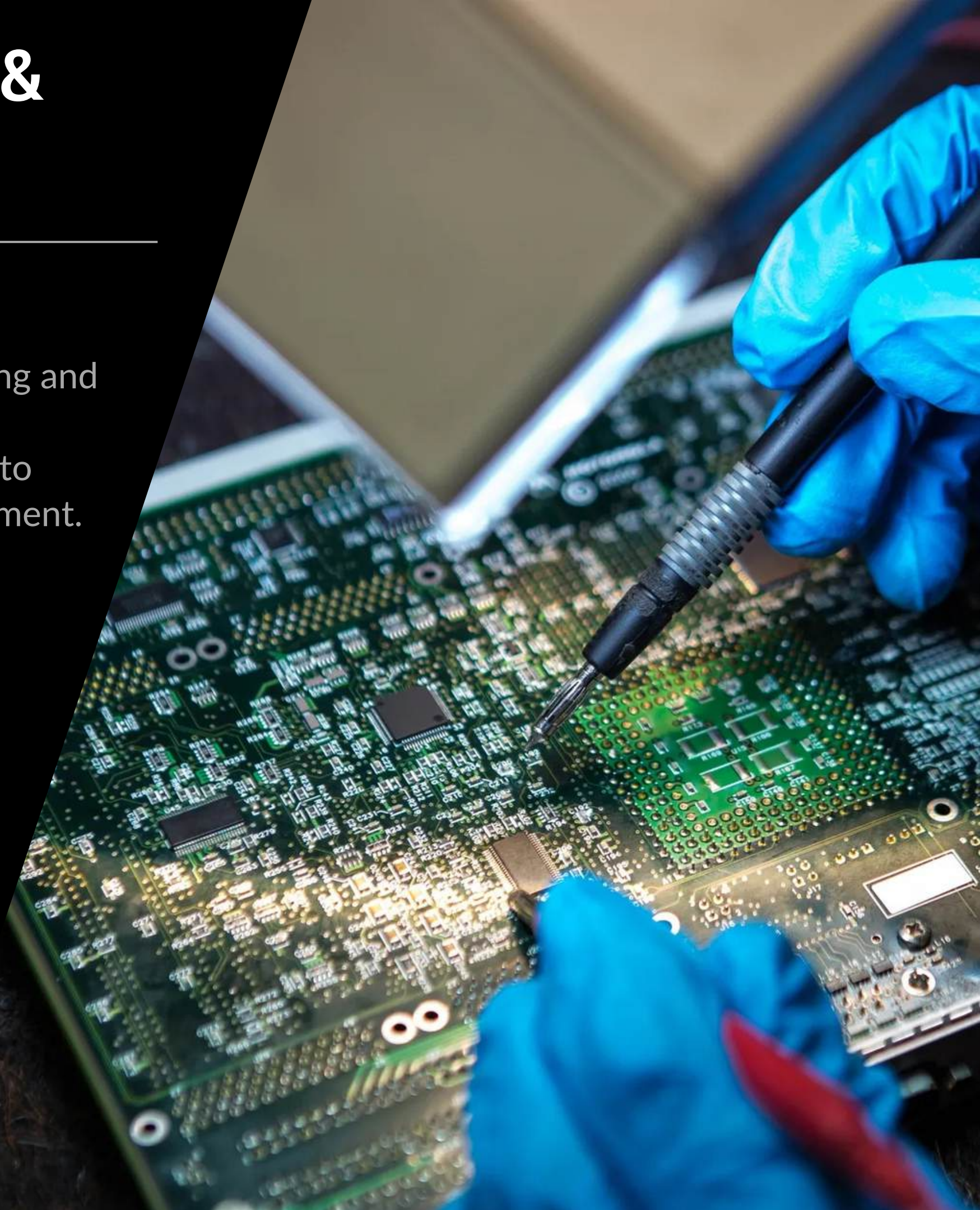
JOINT VENTURES, PARTNERSHIPS, & VIRTUAL EXTENSION

Start Your Next Tomorrow with EM

EM is always looking to expand our partnership network in manufacturing and multidisciplinary services. Joint ventures are a core of EM's business developmental goals, and we are always looking for more opportunities to assist your firm with contract engineering services and product development.

Context: From our 2025 market study, approximately 10% of leads for manufacturing and development firms alike are looking to utilize the firm's manufacturing or development capabilities but are lacking in internal or external engineering bandwidth.

Firms that utilize EM's services as virtual extension to their existing or non-existing engineering bandwidth see, on average, a bottom line increase of +\$650,000 (15%) over a two year period per client from gaining vital market shares as a result of EM's turnkey development environment



WHY CHOOSE US?

What makes us qualified for your next project?



Commitment to Quality & Customer Service



Deep Industry Experience



Agile & Flexible Development Capabilities



Expertise in Turnkey Ecosystems



CONTACT US

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