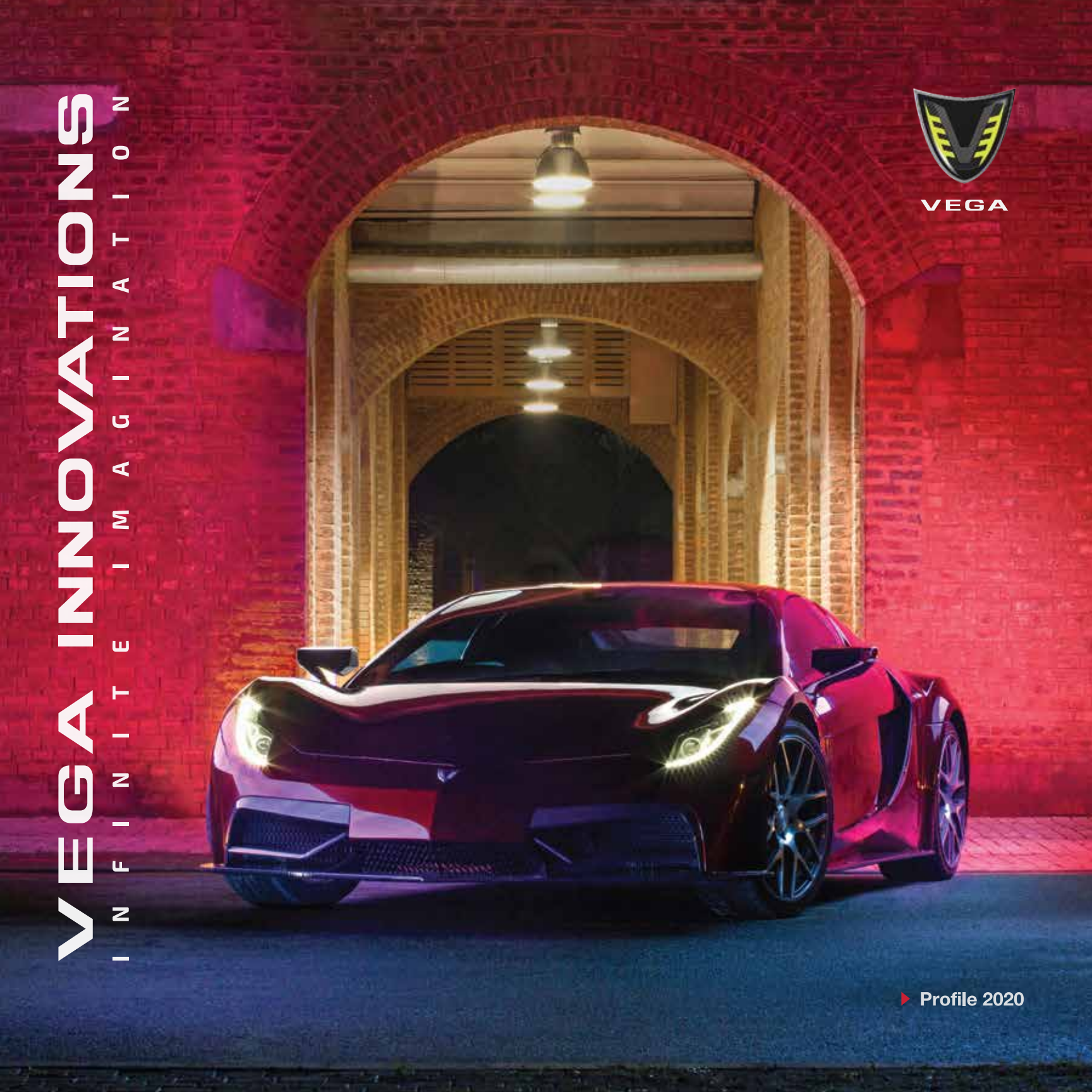
VEGA INNOVATIONS

INFINITE IMAGINATION



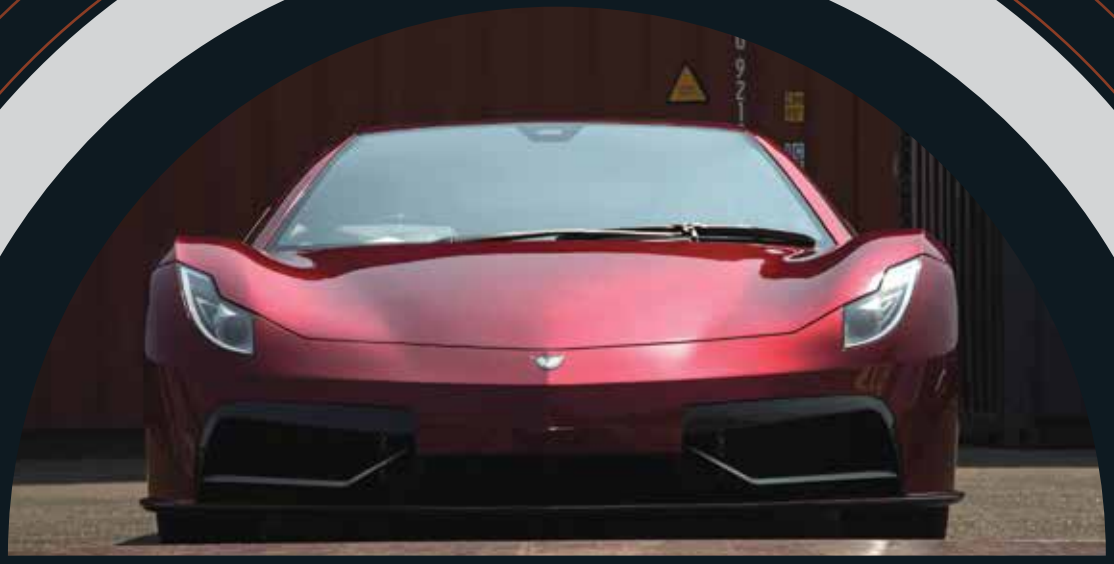
VEGA

Profile 2020

Vega Innovations is an automobile manufacturer of electric super cars, based in Colombo, Sri Lanka. Vega also designs and manufactures electric vehicle (EV) components such as high-performance inverters, drivetrains and battery packs while providing EV research and development (R&D) services to clients worldwide.

Founded in 2013, Vega has developed South Asia's first electric super car, Vega EVX, which will be unveiled at the Geneva International Motor Show in March 2020. Vega is also developing alternative, mass market, transportation vehicles with its international partners. Vega Innovations is a startup company which is part of CodeGen International.

AUTOMOTIVE



DESIGN STUDIO

EV CHARGING

Harsha Subasinghe

President and Chief Executive Officer
of CodeGen Group of Companies (parent
company of Vega Innovations Pvt Ltd.)

Harsha founded CodeGen in year 2000, which has now grown to over five hundred staff members based in Sri Lanka, UK, Canada and the U.S.A. The company is renowned for delivering innovative, fully scalable, high-performance solutions to leading travel organisations worldwide. Travelbox technology of CodeGen has become the leading solution for the travel industry around the world.

Harsha started his journey as a Software Engineer and possess many years of experience in Software Engineering. His research interests are in Artificial Intelligence, Software Development, User Interfaces and Medical Applications.

Apart from the primary business, he formed Vega Technologies, Ombo Technologies, AiGrow, chargeNET, Ram studios, Currymuch and Qube Studio and have produced some of the renowned brands such as Vega, chargeNET, CloudSchool, Qube, TravelBox, and Lia.

Harsha holds a bachelor's degree in Electrical and Electronics Computing from the Middlesex University, UK. He then completed his master's degree in Information technology and the PhD in Artificial Intelligence and Software Agents from the City University, London.

He plays a vital role in building up innovative culture within the universities. He is a key sponsor for R&D projects of many state universities in Sri Lanka which helps mould the correct industry-oriented mindset of young undergraduates, making them employable as they graduate from the universities.

Beshan Kulapala

Director and Strategic Planning

Beshan is the Director and co-founder of Vega Innovations. Since 2013, Beshan has been leading a team of young, multidisciplinary engineers, developing high-performance electric super cars and new automobile technologies for the electric vehicle market. In addition, Beshan is also the Director of the startups, chargeNET and AiGrow, which are aimed at pushing technological boundaries in EV charging and advanced agriculture fields. Since 2013, he has also been a Research Scientist at CodeGen International which is the parent company of Vega, chargeNET and AiGrow.

Beshan posses more than 15 years of experience in the industry. Prior to joining Vega, Beshan was an Engineering Manager at Intel Corporation, U.S.A, during which he led a team of engineers to develop integrated debug and survivability capabilities for all CPU products across the company. He was also the co-founder of the Validation Core Unit (VCU) - Center of Expertise at Intel Corporation. Beshan volunteers his time in the Director board of TRACE as well as serving as a Scout Master for his local Boy Scout troop.

Beshan obtained his bachelor's degree in Electrical Engineering from the University of Kentucky. Afterwards he completed a master's and PhD in Electrical Engineering and an MBA from the Arizona State University, U.S.A.

Company Progress

2014	Ideation and the formation of a dream team
2015	Rolling chassis and 1:1 scaled model
2016	Powered drivable platform with in-house drivetrain and battery pack
2017	Performance test with 0 to 100kmph in 3.1 seconds
2018	Carbon fiber body and interior
2019	Final finishing and detailing
2020	Vega EVX unveiled at the Geneva International Motor Show

Born with a passion for building Sri Lanka's first electric super car. A young dynamic team put together to push the boundaries of technology.

2014

Space frame chassis, designed, simulated and built to match the stresses of a high-performance vehicle

The 1:1 ratio hand built plug, carefully crafted to perfection brings out the beauty of the design and the aerodynamics.

2015

Hundreds of hours spent to ensure that every reflection is photoshoot worthy, focused on quality and performance

2016

First test body panel gets mounted on to the chassis , as the vehicle gets ready for testing

All the electronic components designed by our team of experts, with multiple cooling systems

The heart of the vehicle, in-house custom built motor controller with liquid cooled electronics for soul shaking performance

2017

Testing our drivable platform to develop components faster and far superior than the market.

Carbon fiber body panels get mounted with high quality materials reducing weight, and increasing strength.

2018

Leather interior panels are installed with the in-house infotainment system

Near completion prototype coated with a distinctive candy red

2019

Vega EVX ready for the Geneva International Motor Show

AUTOMOTIVE

VEGA ELECTRIC SUPERCAR

Fully electric, two seater super car, in a handmade carbon fiber body powered by a dual motor all-wheel-drive drivetrain. All automotive electronics, including the liquid cooled motor controllers and Li-ion battery pack is designed and manufactured in-house, showcasing some of the most advanced technologies in the EV super car space.

TORQUE
760Nm

POWER
804hp

ACCELERATION
0-100km/h
3.1seconds

RANGE
300km
with 55kWh NMC Gen 2 Battery Pack

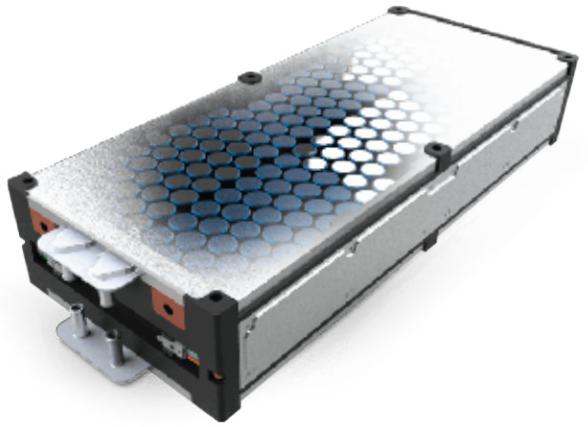
Sri Lanka, a country with a history of over 2500 years, has been the preferred destination for natural stones, fine woven fabrics, jewellery and spices. With abundant varieties of fauna and flora, sustainable materials has always been a way of life. We use the essence of our paradise island in our designs, and use our colourful culture to bring the designs to life.

Our craftsmanship in metal work, leather and fine stitching is something that is passed on from generations to generations. Mixing different materials and textures, using sustainable natural fibers, stones and metal makes our handmade designs unique and takes luxury to a whole new level.

HANDMADE
CRAFTSMANSHIP

Automotive Components

High Performance liquid cooled battery pack design

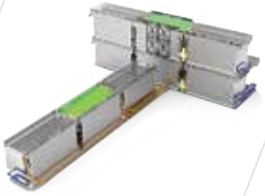


Custom engineered motor controllers for high performance drivetrains

Battery Pack

Design and develop high performance liquid cooled battery packs using pouch and cylindrical cells. Capability to design dual tab cooled, cell fused battery assemblies with integrated state-of-the-art Battery Management Systems (BMS). Using AI based software solutions to monitor battery health and increase the lifetime of the cells. Providing research, development and testing capability for high performance battery pack designs for customers worldwide.

LFP
40kWh
240km



NMC
55kWh
300km

NCA
130kWh
750km

Motor-Controller

Advanced traction control inverters for electric vehicle applications, using patent pending technology for lightweight, high power density requirements. Capable of 350kW peak power, operating up to 900V and 600A. Liquid cooled with pin-fin structure baseplate proprietary technology, reducing costs and enhancing lifetime of the solid state devices. Expertise in engineering custom motor controller for high performance EVs to smart mobility solutions.

350kW **900V**

Stunning in car user experience

Digital Instrument Clusters & Infotainment

Connected cars with advanced user friendly instrument clusters, and touch screen infotainment panels define the interiors of modern vehicles. Vega has worked with numerous high performance computing hardware & software platforms and, display manufactures to bring AI based USPs to the infotainment sector. Vega cluster combines vehicle driving information including speed, charge level, trip distance, range prediction, power usage, regenerative power, warning indications, cabin temperature, clock, etc. The intuitive user interface of Vega infotainment system opens up a new dimension to smart connectivity by enabling control functionality of doors, mirrors, multimedia, climate, mobile phone connectivity, and navigation.

Innovative Smart vehicle controllers for modern EVS

Vehicle Control Unit - VCU

Containing three fully customizable high speed micro-controllers with advanced safety monitoring built in. Ability to log data and interface with external telemetric systems. Equipped with failure management protection and firmware upload capability though the CAN bus. With the flexibility of configurable I/Os, including redundant brake and accelerator pedal inputs, dual drive selector inputs, up to three CAN communication ports and a LIN/OBD2 diagnostic port.

x3
CAN 2.0
LIN BUS

Configurable I/Os

Energy conscious, smart optimization algorithms

Thermal Management Controller

Dedicated Thermal Management Controller (TMC), seamlessly integrated with the vehicle control unit, to optimize and manage the temperature of critical drivetrain components. The TMC monitors data from other systems, & components, and can store data as well as connect with telemetric systems for remote monitoring. Energy optimization is a must to extend the range of EVs, and to ensure safe operation of each component. With advanced features and intelligent algorithms to maintain a tight temperature control, combined with multi-channel capabilities, Vega's TMC can be customized for OEM compatibility at a lower cost point.

Intelligent
Thermal Management

Multi protocol EV charge controllers for slow and fast charging

Charge Controller

Complying with the industry leading standards of SAE J1772, IEC-62196-2, CHAdeMO and CCS, Charger Controller covers both normal and fast charging requirements of the EV. AI is at the heart of every solution that is built, so is Vega's Charge Controller designed for advanced performance and mission-critical delivery.

AC

DC

Body Control System

Distributed architecture to increase performance and reduce costs

Vega's Body Control System is based on a distributed architecture bringing advanced features at a reduced overall cost point.

Body Control Unit (BCU)

Body control unit manages various distributed components of the vehicle which are part of the Body Control System (BCS). With multi-channel CAN, LiN communication methodologies, as well integration capability in to infotainment clusters, BCU can be integrated easily in to existing architectures to work seamlessly in advanced automobiles.

Door Control Unit (DCU)

Door Control Unit (DCU) is a purpose built component to manage every part of the door for a modern, feature rich vehicle. Features include side mirror control, door locks, power shutters, touch controls, multiple LED drivers with RGB and PWM control, safety and emergency controls. Fully configurable firmware stack with CAN communication.

Light Control Unit (LCU)

Headlights and taillights are an important market differentiator, and Vega's innovative Light Control Unit (LCU) integrates value added features in a cost effect packaging. Full control of multi LEDs, including RGB, brightness , and PWM. A configurable pattern engine to enable users to select different illumination patterns, makes this LCU standout from the pack.

Climate Control Unit (CCU)

Cooling and heating for precise control of temperature, humidity, air flow not only essential for comfort, but vital for energy usage optimization. Multi occupant, multi vent controllability, including passenger seat temperature control. Integrates with the touchscreen or knob control interfaces, and has advanced features such as climate configuration memory based on occupants.

DESIGN STUDIO

What we offer”

We are a one stop design house, focused on bringing ideas to life. From engineering to manufacturing we cover the entire spectrum of the product development cycle. From the point of first contact, we work with a client to understand their needs, and the problem they are trying to solve. We engage during any stage of the product development cycle, and ensure high quality, on time service, while ensuring the client’s intellectual properties (IP) are safeguarded. We work with multinational companies from around the globe, developing innovative products of the future.

All the Expertise in One Place

Our skill set in multidisciplinary fields, make any idea come to life with precision engineering and brilliant application.

DESIGN 95%

HARDWARE 90%

FIRMWARE 90%

SOFTWARE 95%

MANUFACTURE 85%

We are recognized

WSA WORLD SUMMIT AWARDS WINNER 2017

United Nations World Summit Award Winner for High Impact Digital Innovations, purpose built for a future that is smart, connected and intuitive. Leveraging on IoT and advanced technologies, we designed one of the most comprehensive end-to-end solutions for the Automobile and Transportation sector.

Awards

Industrial Design Services

Process Map

Internet of Things

Making anything possible with seamlessly connected, smart systems

Artificial Intelligence

Super efficient and future proof product development with AI.

Industrial Automation

Analyze manufacturing processes, simulate process changes, and bring in advance industrial automation techniques to bring costs down, increase efficiency and quality

Electronics

Design, develop and test components to devices and scalable solutions.

Mechanical

Take a 360 degree view of your product from design to manufacture.

Mobile and Cloud

Anytime - anywhere, real time accessibility for ultimate user experience.

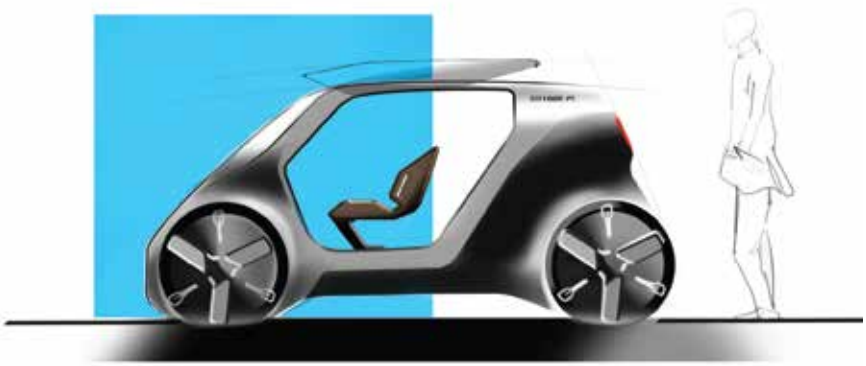
Automotive Design Services

Total Mobility Solutions

One-off cars to Concept Cars

Capability to develop static or running show cars from concept phase to the design and complete show car manufacturing. Focused on quality and accuracy, we provide flexible solutions to clients with the rapidly changing automotive market. We can manufacture Show Cars in a wide range of materials and solutions, in order to meet our clients' specifications. Our products are used for auto shows, clinic tests and running tests and allows our clients to carefully evaluate how the market will accept their new product.

Smart, shared, sustainable transportation



Smart Urban Transportation

We are passionate about using technology in EVs to find solutions in city transportation. Sustainable, shared transportation concepts is vital for reducing city traffic and reducing pollution. Our focus is on cost effective solutions for the emerging markets, finding the necessary balance between features and cost. We have worked extensively with local and foreign partners to develop and manufacture alternative mass market vehicles.

In-car User Experience

Infotainment Systems

Connected cars with advanced user friendly instrument clusters, and touch screen infotainment panels define the interior of modern vehicles. Vega has worked with numerous high performance computing hardware & software platforms and, display manufactures to bring AI based USPs to the infotainment sector. Vega cluster combines vehicle driving information including speed, charge level, trip distance, range prediction, power usage, regenerative power, warning indications, cabin temperature, clock, etc. The intuitive user interface of Vega infotainment system opens up a new dimension to smart connectivity by enabling control functionality of doors, mirrors, multimedia, climate, mobile phone connectivity, and navigation.

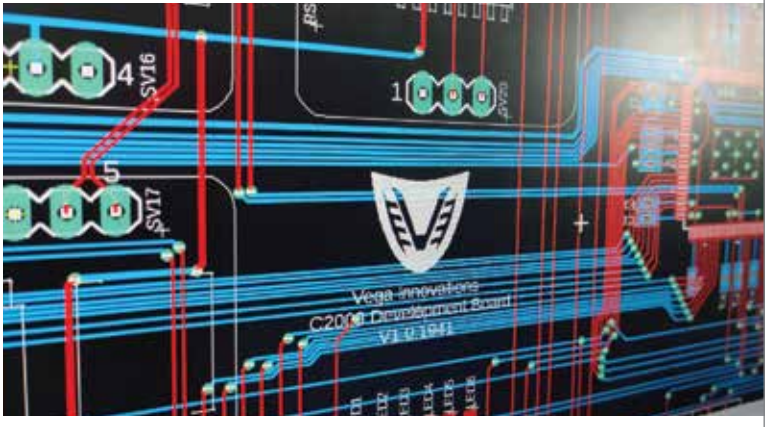
Smart, intuitive user interfaces

Connected Applications

5G together with real-time services will revolutionize the automotive industry. In-vehicle electronics and embedded platforms will pre-process rich data, and in real-time enables the data to be processed on dedicated cloud computing platforms to enable thousands of new features and business models for your automobile. Connected vehicles of the future will enable new features in safety, performance, diagnostics and autonomous driving capabilities. Our expertize in AI and Cloud-based software development is ready to take on the challenge and bring personalized connected vehicles to a whole new level!

Mechanical Engineering

A range of services from concept design, detailing, advanced analysis, prototype development and testing. Operating in multiple industry verticals, with in-depth knowledge on mechanical, structural and flexural design and years of experience in CAD, CAM and CAE, our engineering development and capabilities in manufacturing specifications are unmatched.



Electronics & Firmware

Engineering robust solutions that are intuitive and compliant with international standards in multiple industries, gives us an edge to collaborate and apply best practices across related and unrelated fields. Integration of electronics and firmware to design advanced systems architecture, makes our solutions scalable and agile for mass production. Extensive expertise in circuit design, simulation, schematics, PCB layout, routing, and prototype testing. We specialize in mission critical firmware development for multiple microcontroller families.

Prototyping

Explore, evaluate and test every stage of the product life-cycle to optimise, verify and validate, market fit and product capabilities prior to production. Ranging from physical product, stimulations and digital interfaces, we transform any idea into something real with bottom up development and technology integration through multidisciplinary applications.

Carbon Fiber Manufacturing

Our expertise in carbon fiber layup, and vacuum infusion based manufacturing is focused on the low cost prototyping and small scale manufacturing needs of various stakeholders. We undertake mold, and panel manufacturing and ship completed panels securely worldwide.

Simulation & Testing

We take into account all interdependencies and performance variations at each stage of your product life cycle by modelling, simulation and analysis for sustainable development. With advanced analytical tools, you can explore innovative concepts, fine-tune design in virtual simulations, to ensure the concepts are realistic, and market worthy prior to production.

EV Conversions

Converting internal combustion engines (ICE) to pure electric, gives classic cars a whole new life. We undertake customized conversions, interior and exterior modifications as well complex chassis, suspension and drivetrain modifications.

Vehicle Customization

MINI COOPER
in action

MINI COOPER

An AWD electric drivetrain conversion
with a Lithium-Ion batter pack

A carefully engineered ICE to EV conversion with performance to match. A smooth, quiet trouble free driving experience of a beautiful Mini Cooper.

EV Charging

chargeNET

Sri Lanka's First and Largest EV Charging Network

chargeNET is Sri Lanka's first smart Electric Vehicle (EV) charging solution, powered by IoT technology, fully automated with seamlessly networked operation. Ranging from Level 2 to fast charging solutions, with scalable load balancing mechanisms to facilitate green buildings, with smart access to data at all levels of the operation, across all users. With over 3000 users, chargeNET's focus is to expand its services, to offer futuristic regional and trans-border infrastructure that is safe, inclusive and accessible to the public for EV/ PHEV charging, facilitating a greener tomorrow.

chargeNET is an end-to-end platform with unique business models to support positive economic, social and environmental links. The cloud based web application enables smart monitoring, smart payments and station management with access to all the chargers island-wide. Smart card and app authentication enable the user easy access and remote monitoring

Home charger

Easy to use EV charger comply with SAE J1772 and IEC-62196-2 international standards. Plug and play operation, adaptable up to 6.6kW. Sleek and compact design to match domestic environment. Ideal for home or office.

6.6kW | Type 1 Type 2 | 3-4 hours

Commercial Level 2 charger

Designed and manufactured according to SAE J1772 and IEC-62196-2 international standards and adaptable up to 6.6 kW. Coupled with a cloud connected, mobile app and smart card controls for a fully automated operation. Ideal for commercial use, for apartments and corporate offices.

6.6kW | Type 1 Type 2 | 3-4 hours | NFC

Fast charger

Dual standard capability with CHAdeMO and CCS international standards. Scalable from 30 – 75 kW with dual port capability. State-of-the-art design for digital advertising and real-time promotions, with mobile app and smart card controls for a fully automated operation. Cloud connected for easy manageability.

75kW | CHAdeMO CCS | 30 mins | NFC

Production Version Spec

Peak Power	1.4 Megawatt
Powertrain	4 Motor AWD with Torque Vectoring
Battery	130kWh/900V
Performance	0-100kmph 1.9sec (Estimated) Top speed - 380kmph (Estimated)
Range	750km

Our production version of the Vega EVX will be manufactured with a 130kWh cylindrical Lithium-Ion battery pack, coupled to a 4 motor AWD torque vectoring drivetrain. With 1.4 Megawatt peak power at 900V, the production version would have an estimated acceleration of 0 to 100kmph in 1.9 seconds, a top speed of 380kmph and a range of 750km.

Invest

Since its inception in 2013, Vega has been on a mission to create amazing technologies for electric vehicles. Comprising of a team of passionate engineers; building the VEGA EVX has been their voice and proof to unveil not only their capabilities, but also the determination to overcome any obstacle or challenge in their path. In a resource constrained environment, taking the much harder route of in-house designing of its own motor controllers, battery pack, and all other electronics on the vehicles, the technical breadth and depth of their teams potential is showcased.

With a small, but a multi-disciplinary team of experts, this team has achieved the unthinkable from a small agriculture oriented island country such as Sri Lanka. In the past 6 years they have worked hard to build expertise, and develop an array of technologies that are now proven on the Vega EVX. Producing these new technologies at a much smaller price point, Vega is an ideal team to partner and invest in.

As the team moves forth to the next stage in its ventures ahead, they are looking for investors and partners to take the Vega ETX to the manufacturing stage.

Let's join hands to continue develop new technologies, conduct research, produce OEM components, and develop super cars to smart mobility solutions of the future.

CONTACT US

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