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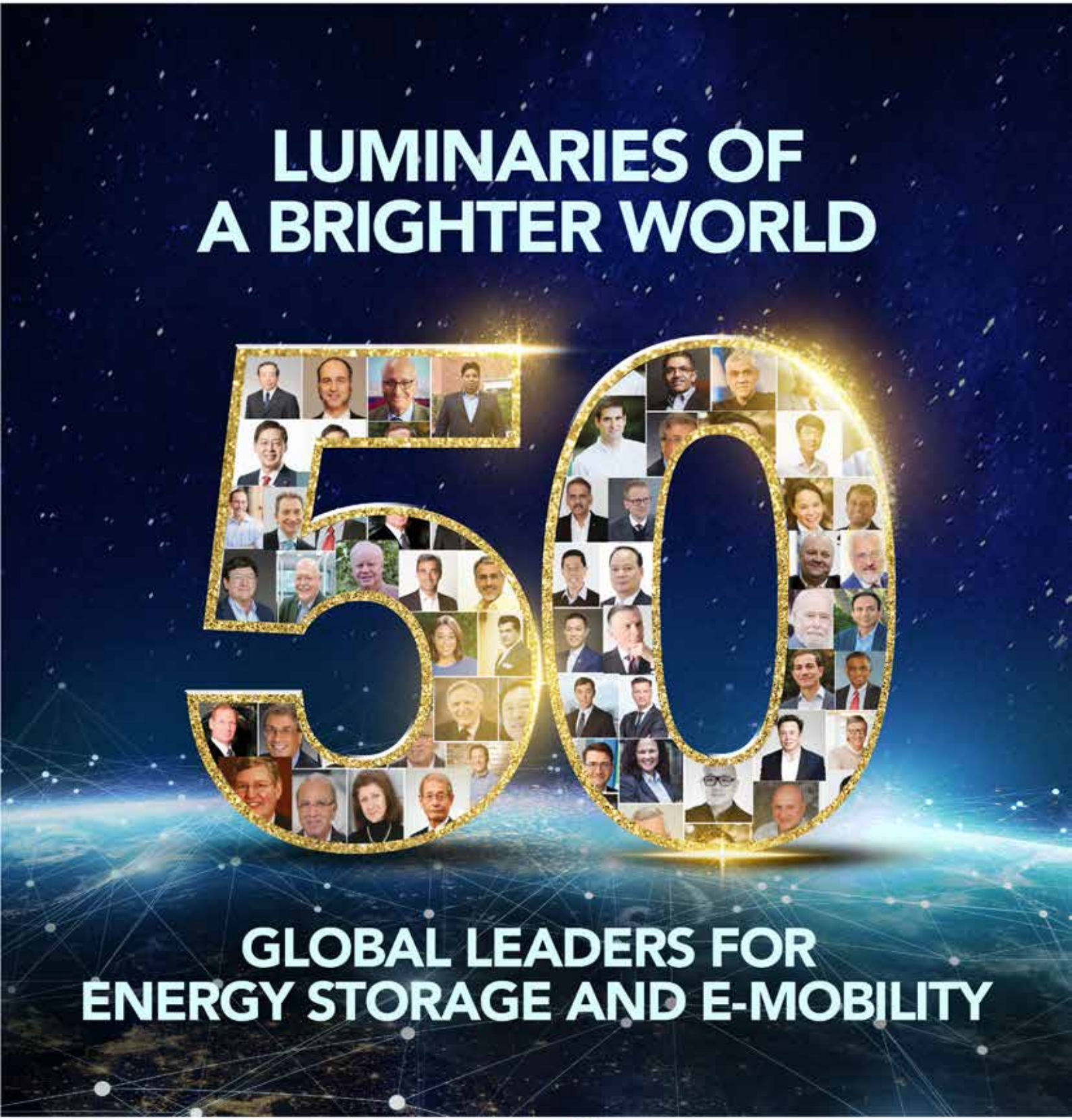

Startup Innovations in EV Sector: Case studies from VJTI-TBI

New-age entrepreneurs are entering the EV market with new business models and introducing innovative technologies to automate agri-produce harvesting, promoting personal mobility and introduce last-mile micro-mobility products, etc. ***Dr. Roshan Yedery, CEO - VJTI-TBI,*** *talks about VJTI's incubator set-up and how it is successfully supporting promising startups in the electric domain.*

According to a market report, India has sold more than one million electric vehicles in the last two years. According to Mordor Intelligence, the Indian EV market was valued at $5 billion in 2020 and is expected to reach $47 billion by 2026 registering a CAGR of above 44 percent during the forecast period (2021-2026).

However, the EV market in India is still considered to be in a nascent stage but is expected to grow at a much faster rate due to various government initiatives, including the implementation of the FAME-II Scheme and promotion of EV products and associated industries. In recent times, a significant contribution to this sector has come from not only traditional manufacturers but also startups.

Considering these encouraging trends, the prestigious Veermata Jijabai Technological Institute in Mumbai set up the Technology Business Incubator (VJTI-TBI), to support startups focusing on various aspects of EVs including technology, innovation, and business models.

Dr. Roshan Yedery

Dr. Faruk Kazi, PI & Coordinator, VJTI-TBI, receiving the 'Smart Incubator of the Year' award from ISGF Team in March 2021
Source: VJTI-TBI

Set up in 2017 with the support of the Department of Science and Technology, government of India, under the NIDHI-TBI Scheme, VJTI-TBI was created as a platform for supporting ambitious entrepreneurs and startups in the country focusing on thematic areas including energy, cleantech, EV, IoT, AI/ML and cybersecurity of critical infrastructure. The incubated startups are provided with co-working space, access to state-of-the-art lab infrastructure (SCADA & Automation Lab, Power Electronics Lab, and AI/ML and Embedded Systems Lab) equipped to test products and prototypes in the domains mentioned earlier. This incubator is already supporting around 30 startups, and was recently named 'Smart Incubator of the Year' at ISGF Innovations Awards 2020.

State-of-the-art prototyping lab for supporting product development in EV sector

In addition, VJTI-TBI provides advisory services in business management, IPR, finance, and accounting, legal and technical domains through collaborations with third-party service providers and industry associations. Incubated startups also get access to free tools including AWS credits, ZOHO platform, Zendesk CRM, SOLIDWORKS licenses, MatLab and Simulink licenses, and MyOperator cloud telephony credits.

VJTI-TBI has also partnered with several corporates (Larsen and Toubro Infotech (LTI), Emerson, NVIDIA, Siemens, and CISCO) and industry bodies (India Electrical and Electronics Manufacturers Association, Cyber Peace Foundation, The Institute of Engineering and Technology, India Energy Storage Alliance, and India Smart Grid Forum) to support the startups through mentoring, funding, and infrastructure (including lab infrastructure). Startups are provided with seed support through CSR partnership with LTI, ITD Cementation India, SIDBI Capital Ventures, and Technotalent Engineering India.

Following are some of the promising EV startups incubated at VJTI-TBI.

Mag9 Energies Pvt. Ltd.

Sunit Shah, Nikunj Shah, and Vikas Gupta co-founded Mag9 Energies (previously Magnes Motors India) with the sole purpose of providing micro-mobility services in the EV segment. The Team under the Magnes Motors brand was one of the first to offer an electric go-kart for the amusement parks in the country. Later, they also focused on developing a dirt bike for the amateur sports industry and have already developed a prototype of an electric delivery 2-wheeler for the logistics sector.

Mag9 Energies has generated revenues of ₹ 1 crore from the go-kart product line and has also introduced an e-bike recently. These e-bikes will soon be made available on the VJTI campus as a part of their go-green initiative. Mag9 Energies have been selected as finalists in STPI Motion and other reputed incubation programs in the country focusing on EV development.

PMV Electric Pvt. Ltd.

PMV (personal mobility vehicles), is currently developing its flagship product, EaS-E, an electric smart car for everyday use with a focus on sustainable personal mobility; to address the global challenges of pollution, climate change, urban congestion and parking issues. The two-seater fully electric smart microcar will have some top-of-the-line benefits like cruise control, a feet-free driving mode in traffic, remote parking assist, over-the-air updates besides the regular air conditioner, music system, navigation, safety seat belts, etc.

The startup has received more than 200+ inbound leads for the product and has got an initial confirmation from an existing OEM distributor (exports) to exclusively distribute the product in their market (can translate into ₹ 10 crore of order book).

PMV Electric has raised initial seed funds through Angel Investors in November 2020 and has got a further commitment to raise more funds. Also, they have export inquiries under discussion, so that they can realize their dream of 'Made in India, Made for the World'!

JyoSH AI Solutions Pvt. Ltd.

JyoSH Agriculture Integrated Robot is an EV-enabled and AI-ML-technology-based smart, precision farming solution for entire automation cotton cultivation, which includes weed management, crop health monitoring, and cotton harvesting. It improves the productivity and profitability of cotton farmers by saving labor and chemical costs. JyoSH AI robot is also designed to automate the cultivation of other fruits and vegetables as well.

The co-founders, Dr. Sharadchandra Lohokare and Jitendra Ahirrao, have a combined experience of over 50 years in mechatronics, product development, AI/ML, and program management.

JyoSH AI Solutions are the winners of the Agri India Hackathon held in Feb 2021 under the 'Farm Mechanization' category. They have also been selected for NIDHI PRAYAS funding and by NASSCOM for DTC (Deep Technology Club). At present, the startup is also incubated at SINE-IIT Bombay and AIC-RMP, Mumbai. They also signed an MoU with Dr. Panjabrao Deshmukh Vidyapeeth, Akola, for agri-domain support, and Jadhao Agro Industries, Amravati, for product manufacturing.

Along with Mag9 Energies, PMV Electric, and Jyosh AI Solutions, VJTI-TBI expects to support more EV-based startups in the future cohorts. With the right support of lab infrastructure, training, mentoring, and fundraising, the incubated startups can definitely aim to take their tech-based product/service to the next level. ETN

Nimble e-bike developed by Mag9 Energies, focusing on the hyper-local delivery sector in Mumbai and Pune region
Source: Mag9 Energies

EaS-E® electric smart car
Source: PMV Electric

Prototype of Jyosh AI robot is currently being tested at cotton farms of farmers in Akola district
Source: Jyosh AI Solutions