Clean Tech

Fast charge rechargeable, bio-organic and bio-degradable batteries from Crop Residue (Proteins)

APPLICATION

At Nexus, we make rechargeable, bio – organic and bio – degradable batteries from crop residue. The indigenously developed batteries charge faster and last longer than its counterparts. Nexus batteries reduce dependence on lithium and by using crop residue, we keep a check on air pollution, too!

COMPANY NAME

NEXUS Power Pvt Ltd

FOUNDERS' NAME

Nishita Baliarsingh
Nikita Baliarsingh

TECHNOLOGY READINESS LEVEL (TRL)

TRL: 5 (Currently testing the 3D printed prototypes in the lab and in the 2W EVs as well)

INTELLECTUAL PROPERTY

Indian Patent App No:, 202231063415 202231063414, 202231063418, 202231063411, 202231063408, 202231063420, 202231063388, 202231006349 202231063388, 202231063352, 202231063348, 202231005018, 202231006317

PROBLEM ADDRESSED

Lithium is scarce, hazardous and extremely volatile. Burning of lithium batteries due to temperature fluctuations has been a common phenomenon. In addition to this, Lithium is not safe for the ecosystem. Lithium - ion batteries are also very expensive and take too long to attain full charge.
Nexus solves all these problems by using earth abundant material. Crop residue is available in all geographies of the world and is a much cheaper option. The patented technology ensures fast charging, long lasting and most importantly environment friendly batteries for electric vehicles, grid storage, drones and consumer electronics.

ABOUT THE TECHNOLOGY

Proteins in the living organisms possess properties of electron transfer and energy storage just like the batteries made from li – ions. The proteins are also good conductors of electricity and facilitate the flow of electrons. In the initial research work of the company, it was found that crude protein is found in crop residue. Considering that this part of the agriculture waste is usually burnt as there is no good way of disposing them, the company opted to use the residue as a raw material to extract protein. The extracted proteins are further broken into smaller particles known as peptides, which are doped with Carbon Nanotubes to build a composite / crosslinked material to achieve the desired electrodes for the flow of electrons in the battery.

FUNDS RAISED / ACHIEVEMENTS

- BIRAC BIG fund of INR 50 lakhs
- DST NIDHI PRAYAS (7th Call) – INR 7 Lakhs
- Received equity funding (Raised 1st round of investments) from JITO Angel network and UK-based Pontaq VC in association with STPI.

Achievements:

- Successfully tested 3D printed 36V battery pack
- Signed MOUs with EV OEMs to take up trials of our battery packs in their vehicles.
- Received 'Battery Technology of the year' award at India EV Awards in December 2022.
- Listed under Forbes 30 Under 30 both Asia and India for the year 2021.
- Appreciated and highlighted in MG Changemakers, Vogue India, Entrepreneurs – women to watch etc.

PRODUCT IMAGE

USP

The EV batteries at present act as a significant hindrance in the EV adoption due to its price, lower range, toxicity and high volatility. These batteries create a range anxiety which is a major concern. We're building batteries to address these issues in the industry. Our batteries are safe, made out of earth abundant materials, making it a cheaper offering and offer a much higher range and better performance in terms of a faster charging time, higher energy density and longer life cycle.

END USERS / CUSTOMERS

- Nexus batteries are made 'one cell at a time' which makes the battery pack customizable as per the industry standards. We make eco – friendly batteries for electric vehicles, grid storage, drones, defence gadgets and consumer electronics. The main buyers of our product are OEMs as the company operates in a B2B model. We are open to exploring B2G options as well.

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