

Event Report on “Precision Agriculture Enabled by Power Electronics and Autonomous Systems”

Date & Time: 28th June 2025(Saturday), 07:00PM – 08:30 PM IST

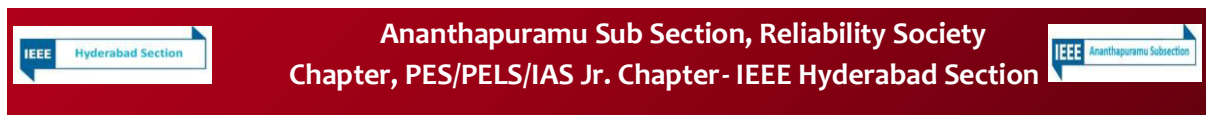
Platform: Google Meet

Meeting Link: <https://meet.google.com/utw-eyuz-rdg>

Organized by: IEEE ATPSS in Association with IEEE HS RSC and PES/PELS/IAS Joint Chapter

Resource Person: Dr. Brij Singh (Fellow IEEE)-Electrification R&D Manager and Power Electronics Technical Fellow in John Deere Inc., USA.

Members present: 53, out of which 16 IEEE and 37 guest members



Precision Agriculture Enabled by Power Electronics and Autonomous Systems



By
Dr. Brij Singh (Fellow IEEE)
Electrification R & D Manager
and Power Electronics Technical Fellow
John Deere Inc., USA
@ 7 PM on 2806-2025



The webinar commenced at 7:00 PM with a warm welcome by the Chair of IEEE ATPSS, Dr.V. Sankar, setting the tone for the evening. This was followed by a brief prayer invoking a positive and reflective beginning. Dr. G. Sivakumar, Chair of the IEEE PES/PELS/IAS Joint Chapter, delivered the opening address, highlighting the significance of the session and the collaborative efforts behind the event. The introduction of the resource person was delivered, providing a

brief overview of the speaker's expertise and accomplishments before the technical session began.

Dr. Singh is an IEEE Fellow and have served as the IEEE Power Electronics Society Distinguished Lecturer (PELS DL) from 2021-2024. and serving as the chair of the IEEE PELS DL Program (IEEE PELS DLP). Dr. Singh is a renowned expert in power electronics with over 100 research papers, 40 granted U.S. patents, and numerous international recognitions. He is a former Distinguished Lecturer of the IEEE Power Electronics Society and currently serves as the Chair of the IEEE PELS Distinguished Lecturer Program. His contributions have been acknowledged by John Deere, the US Department of Energy, and several academic and industrial bodies worldwide. **Dr. Singh** delivered a captivating and insightful lecture discussing the transformative role of power electronics and autonomous systems in modern agriculture. Key technologies like ExactEmerge Planter, See & Spray systems, and Autonomous Tractors were presented, demonstrating how electrification and smart systems enhance efficiency, sustainability, and productivity in farming practices. His talk emphasized the need to scale food, fiber, fuel, and transportation solutions for a growing global population.

Participant Engagement:

The webinar witnessed 38 enthusiastic professionals, academicians, and students interested in railway systems, human factors engineering, and safety management. A dedicated Q&A session allowed attendees to interact with the speaker, further enriching the learning experience.

Event Photos

The screenshot shows a Zoom webinar interface. At the top, a banner reads "Harinath C (Presenting, annotating)". The main content area displays a presentation slide titled "R&D Projects for Heavy-Duty Vehicles - Decarbonization of Vehicle Traction Power". The slide includes the following information:

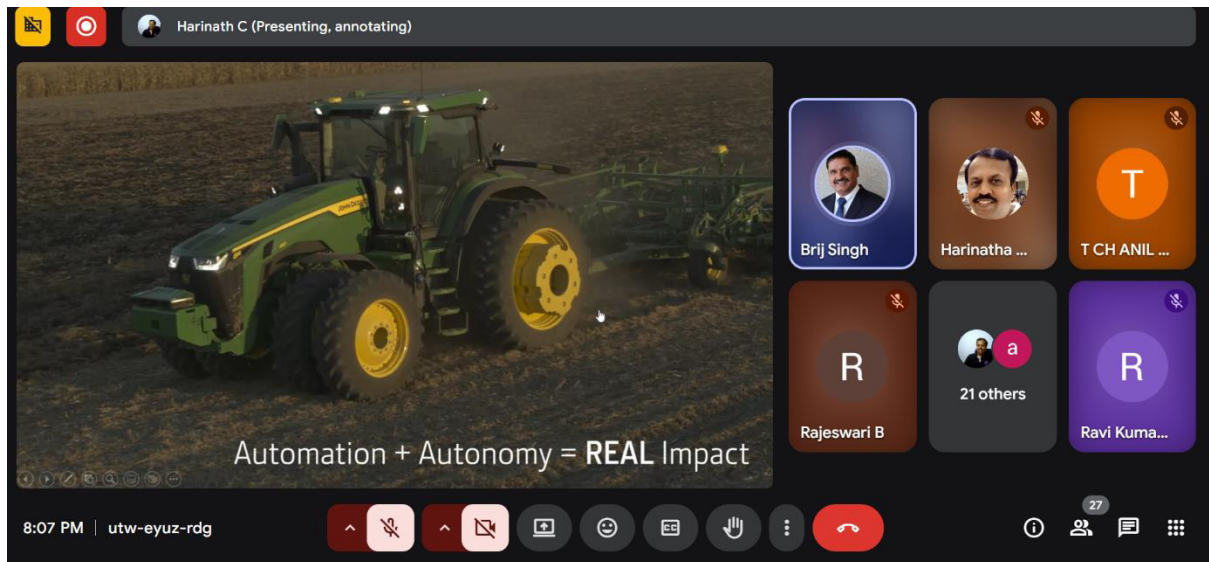
- DE-FOA-0002475
- FY21 Low Greenhouse Gas (GHG) Vehicle Technologies Research, Development, Demonstration and Deployment
- AOI 4b - Electrified Construction Vehicle Research, Development, and Validation
- A table with 4 columns: Organization, Location, Project Description, and Amount.

Organization	Location	Project Description	Amount
John Deere	Moline, IL	Articulated Dump Truck (ADT) Electrification - GHG Reductions and Commercialization of New Technology in Construction Vehicles Fleet	\$2,756,732

Below the table, the slide text states: "With in-kind cost share, this project with ~\$4M has abundance of resources for in-vehicle testing of the diesel-electric-hybrid powertrain in the electrified Articulated Dump Truck (eADT) - 310E model." It also lists projected impacts of innovative diesel-electric-hybrid powertrain:

- Multi-million metric tons of GHG reductions in fleet of eADTs
- Know-how on interface of the 700V Li-Ion battery across 250kW SiC inverter

At the bottom of the slide, it says "Copyright Deere & Company". On the right side of the Zoom interface, there is a grid of participant avatars, including Brij Singh, Harinatha..., Rajeswari B, T CH ANIL..., 20 others, and Ravi Kuma... The bottom status bar shows the time as 8:27 PM and the user as utw-eyuz-rdg.



Conclusion:

The session successfully highlighted the growing importance of psychological considerations in ensuring railway safety. It underscored the need for a holistic, human-centric framework to manage risks more effectively.

Feedback:

Participants appreciated the clarity and depth of the presentation and expressed a keen interest in further sessions exploring similar interdisciplinary themes.

Prepared by:

Dr.K.Reddy Madhavi
Secretary, ATPSS