

Report on Intelligent BMS: Leveraging AI for Accuracy, Safety, and Sustainability (MathWork–ICT Academy Initiative)

Title of the Event:

Intelligent BMS: Leveraging AI for Accuracy, Safety, and Sustainability

Date: 18/03/2026

Venue: Online in OSH ,FET, Gurukul Kangri Vishwavidyalaya (GKV), Haridwar

Organized By:

ICT Academy in collaboration with MathWorks

Event Coordinator:

Dr. Mayank Aggarwal

Event CO-Coordinator:

Mr. Abhishant Sharma, Mr. Aman Tyagi

Resource Person / Speaker:

Mr. Koustubh Shrinks, MathWorks

Participants:

B.Tech All Year Students

Total Participation: **100+ students**

Objective of the Program

The study aims to understand the importance of Battery Management Systems (BMS) in modern electrification while addressing the limitations of traditional physics-based battery models, such as their complexity and inability to adapt to aging and dynamic operating conditions. It introduces the role of Artificial Intelligence (AI) in enhancing BMS performance and focuses on advanced techniques for accurate estimation of State of Charge (SOC) and State of Health (SOH). Additionally, it covers key concepts like predictive maintenance and real-time fault detection, while providing practical exposure to AI-driven battery analytics using MATLAB and Simulink.

Program Highlights

- Introduction to AI-based Battery Management Systems.
- Comparison between traditional models and AI-driven approaches.
- Advanced AI techniques for SOC and SOH estimation.
- Explanation of predictive maintenance and fault detection methods.
- Discussion of real-world applications and industry success stories.
- Live demonstration:
- AI-based battery analytics using MATLAB & Simulink
- Complete workflow explanation (data collection → model training → deployment)

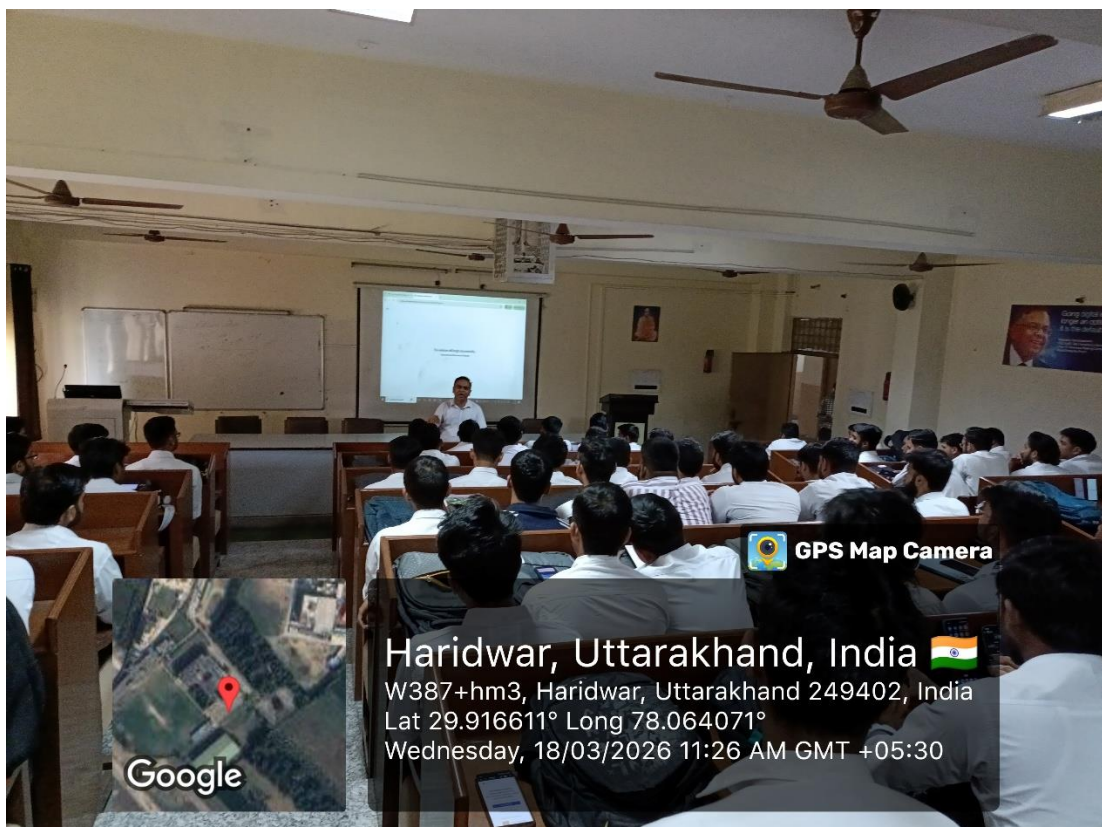
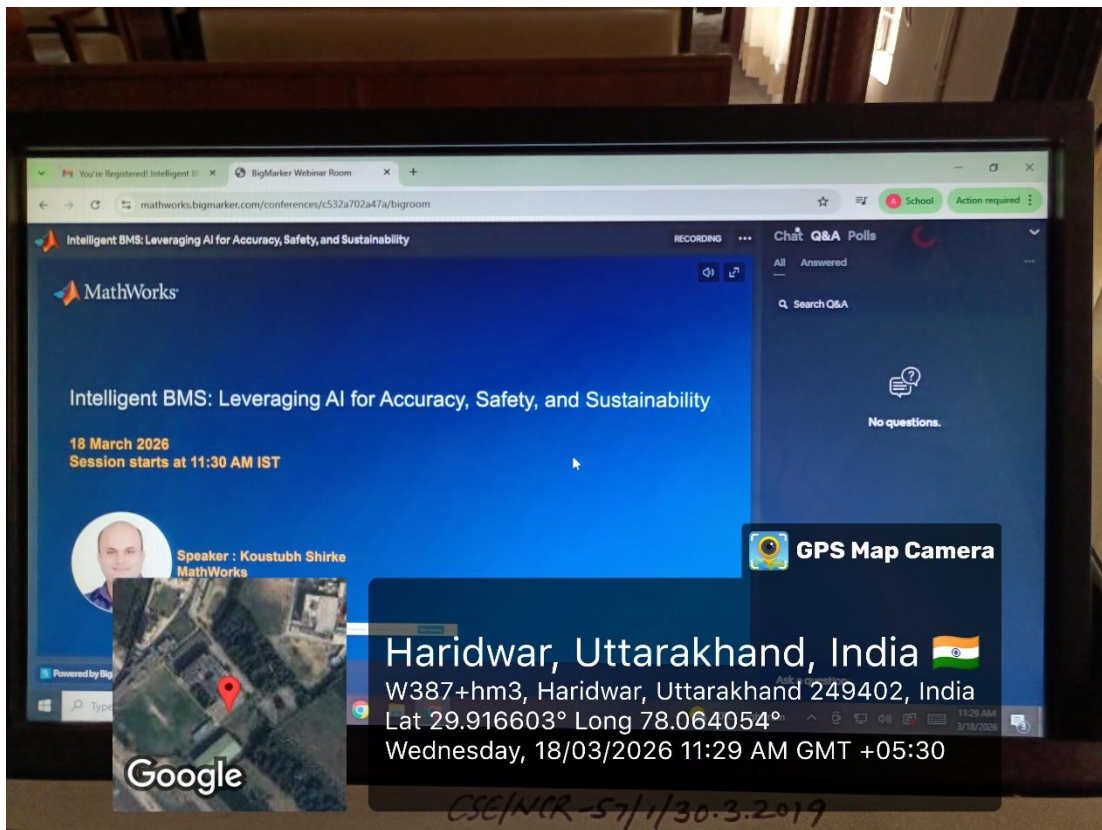
Outcome of the Event

- Participants gained a clear understanding of advanced BMS concepts.
- Improved knowledge of how AI enhances battery performance and safety.
- Learned modern techniques for SOC and SOH estimation.
- Developed understanding of predictive maintenance and fault detection.
- Gained hands-on exposure to MATLAB & Simulink tools.
- Acquired industry-relevant knowledge and practical insights

Conclusion

Artificial Intelligence (AI) has significantly enhanced the efficiency and intelligence of Battery Management Systems (BMS) by effectively overcoming the limitations of traditional methods. It enables accurate monitoring of State of Charge (SOC) and State of Health (SOH), which in turn improves battery life and ensures greater safety. With the rapid advancement in electrification, the demand for AI-driven BMS is expected to grow continuously in the future. The webinar provided valuable knowledge and practical insights, helping participants become more industry-ready.

Images Of Webinar





Poll Time

Which of the following workflows will interest you more?

- Battery SOC Estimation
- Battery SOH Estimation (Remining Useful Life)
- Battery Pack Temperature Estimation
- Anomaly Detection for Motors
- Anomaly Detection for Batteries

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BMS Introduction & Challenges

MathWorks

Software that ensures operational safety, power performance, and durability over the life of the battery system

- State of Charge Estimation
- Cell Balancing
- Thermal Management
- Fault Detection and Diagnosis
- Remaining Useful Life Estimation (SOH)

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Attendance

Title		Date		Speaker		Time	
Intelligent BMS		18/03/26		Koushik Shinde		11:30 am to 12:30 pm	
Safety and Sustainability		Leaving AI for Accuracy		Dr. Mayank Agrawal			

S.N	Name	Branch	Sign
01	Sushant Thappa	CSE	Sushant
02	Rishav Kumar	CSE	Rishav
03	Susjeet Singh	CSE	Susjeet
04	Aaryaman	CSE	Aaryaman
05	Anmol Tyagi	CSE	Anmol
06	Aman Daksh	CSE	Aman Daksh
07	Aman Kumar	CSE	Aman Kumar
08	Sagar	CSE	Sagar
09	Adarsh Kumar Singh	CSE	Adarsh
10	Shivam Singh Patel	CSE	Shivam Singh
11	Karanveer Singh	CSE	Karanveer
12	Rahul Kumar	CSE	Rahul
13	Kshitij Gupta	CSE	Kshitij Gupta
14	Kaushik Karthick	CSE	Kaushik
15	Karthick Gupta	CSE	Karthick Gupta
16	Honey Hemant	CSE	Honey
17	Dipesh	CSE	Dipesh
18	K.P. Lathesh Roy	CSE	Lathesh
19	A. Nanda Sai	CSE	A. Nanda Sai
20	Y. Vidya	CSE	Vidya
21	B. Pavan Kumar	CSE	Pavan
22	Shahid Khan	CSE	Shahid
23	R. Yeshwanth Kumar	CSE	Yeshwanth
24	Aish Anjan	CSE	Aish
25	Ashutosh Nandan	CSE	Ashutosh
26	Vishwjeet	CSE	Vishwjeet
27	Priyanshu Chaudhary	CSE	Priyanshu
28	Ankit Kumar	CSE	Ankit

S.N	Name	Branch	Sign
29	Shubham Kumar	CSE	Shubham
30	Shahin K. Gani	CSE	Shahin
31	Kunal	CSE	Kunal
32	Harsh Kumar	CSE (236301030)	Harsh
33	Harsh Kumar	CSE (236301091)	Harsh
34	Nikhil Sharma	CSE (236301157)	Nikhil
35	Pihul Gupta	CSE (236301144)	Pihul
36	Harsh Jothi	CSE (236301081)	Harsh
37	Kanhaiyalal Rao	CSE (236301104)	Kanhaiyalal
38	Alok Kumar Singh	CSE (236301026)	Alok
39	AYUSH RAI	CSE (236301066)	Ayush
40	Parvath Bhushan	CSE (236301229)	Parvath
41	Shubham Singh	CSE (236301198)	Shubham
42	Rishi Kumar	CSE (236301173)	Rishi
43	Siddharth Singh	CSE (236301202)	Siddharth
44	Ashish Kumar	CSE (236301054)	Ashish
45	Harsh Kumar Singh	CSE (236301092)	Harsh
46	Sourabh Sisodia	CSE (236301254)	Sourabh
47	Piyush Sharma	CSE (236301147)	Piyush
48	Amanpreet Yadav	CSE (236301037)	Amanpreet
49	Sash Kant	CSE (236301183)	Sash
50	Sarwan Kumar	CSE (236301188)	Sarwan
51	Aayush Rawat	CSE (236301008)	Aayush
52	Aditya Sood	CSE (236301024)	Aditya
53	Shanti Bhushan	CSE (236301191)	Shanti
54	Rajesh Rao	CSE (236301166)	Rajesh
55	Vivek Bharti	CSE (236301216)	Vivek
56	AKSHAT SHARMA	CSE (236301174)	Akshat
57	Surya Kumar	CSE (236301207)	Surya
58	Amit Malik	CSE (236301035)	Amit

S.N	Name	Branch	Sign
59	Keshav Sharma	CSE (236301109)	Keshav
60	Ankit Chaudhary	CSE (236301042)	Ankit Chaudhary
61	Sachin	CSE (236301181)	Sachin
62	Aditya	CSE (236301023)	Aditya
63	Amyam	CSE (236301049)	Amyam
64	Satyajeet	CSE (236301184)	Satyajeet
65	Eaksham	CSE (236301222)	Eaksham
66	Vivek	CSE (236301217)	Vivek
67	Sahil Shukla	CSE (236301226)	Sahil
68	Aman Kumar	CSE (236301229)	Aman Kumar
69	Nish Vasthney	CSE (236301141)	Nish
70	Karsh Arya	CSE (236301087)	Karsh
71	Nikhil Sharma	CSE (236301139)	Nikhil
72	Rishabh Kumar Singh	CSE (236301172)	Rishabh
73	Aman Nanhwar	CSE (236301030)	Aman Nanhwar
74	Abhinandan	CSE (236301015)	Abhinandan
75	Ahijay Kumar	CSE (236301081)	Ahijay
76	Ajaypal Prajapati	CSE (236301025)	Ajaypal
77	Amitesh Kumar Yadav	CSE (236301036)	Amitesh
78	Aakash Yadav	CSE (236320005)	Aakash
79	Kishan Kr. Malviya	CSE (236301212)	Kishan Malviya
80	AYUSH KUMAR	CSE (236320015)	Ayush
81	HASH GUPTA	CSE (236301219)	Hash
82	Aditya Prakash	CSE (246303006)	Aditya
83	Poojita Kumari	CSE (236301223)	Poojita
84	Tarunaj Choud	CSE (236301220)	Tarunaj
85	Ashutosh S Choudhary	CSE (236301058)	Ashutosh
86	Ayan Mania	CSE (236301062)	Ayan Mania
87	PRASANT MEENA	CSE (236301150)	Prasant

88	Rajatsingh	241303023	Rajatsingh
89	Prashant Kumar	246303002	Prashant
90	Saurabh Singh	246303004	Saurabh
91	Ashyan Chauhan	246303001	Ashyan
92	Piyanshu Bhatia	236301221	Piyanshu
93	Vikash Gupta	236301209	Vikash
94	Madhuv	23630126	Madhuv
95	Isham	236301101	Isham
96	Prashant	23630151	Prashant
97	Narman	236301136	Narman
98	Nimish	236301140	Nimish
99	Meghna	236301133	Meghna
100	Vikash	236301211	Vikash
101	Manish K	236301130	Manish K
102	Shravan	236301205	Shravan
103	Adarsh	236301022	Adarsh