

Funded Research Projects

Current Projects

- [1] Mohd Hasan Ali (PI), Development of Training Program on Renewable Energy Systems, EnViron Renewable Energy LLC , Amount: \$947,476, [January 01, 2024 to December 31, 2026].
- [2] Mohd Hasan Ali (Co-PI), Center: IUCRC Phase I The University of Memphis: Center for Electrified and Automated Trucking (CEAT), National Science Foundation (NSF), Amount: \$750,000, [August 15, 2024 to July 31, 2029].
- [3] Mohd Hasan Ali (PI), DHS/FEMA-CTG 23: Cybersecurity Issues with Operational Technology and Distributed Energy Resources, Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA), Amount: \$1,000,000, [September 11, 2023 to September 10, 2026].
- [4] Mohd Hasan Ali (PI), Cyber Resilient 5G-Enabled Electric Vehicle Charging Infrastructure, National Security Agency (NSA), Amount: \$498,083, [September 16, 2022 to September 30, 2025].
- [5] Mohd Hasan Ali (PI), DHS/FEMA-CTG-22: Zero Trust: Identity & Access Management, Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA), Amount: \$450,000, [September 2022 to August 2025].
- [6] Mohd Hasan Ali (Co-PI), Cybersecurity Education for Critical Infrastructure Protection (in Community Development) Through Regional Coalition, National Security Agency (NSA), Amount: \$\$2,005,283, [August 2021 to December 2024].
- [7] Mohd Hasan Ali (Co-PI), Improved Packaging Solution for Supercapacitor Distribution and Logistics, UofM Next Generation Supply Chain Technologies and Innovation Challenge, The University of Memphis, Amount: \$15,000, [July 01, 2024 to December 31, 2025].

Completed Projects

- [8] Mohd Hasan Ali (PI), DHS/FEMA-CTG-21: Cybersecurity Impact Analysis for End Users and End-User Security and Privacy (ESP), Department of Homeland Security (DHS)/Federal Emergency Management Agency (FEMA), Amount: \$599,997, [September 2021 to August 2024].
- [9] Mohd Hasan Ali (PI), Artificial Intelligence Controlled Variable Capacitor for Wind Generator Stabilization, Electric power Research Institute (EPRI), Amount: \$5,000, [September 2023 to May 2024].
- [10] Mohd Hasan Ali (PI), Mitigation of Adverse Effect of E3 HEMP on Power Transformers by Intelligent Controller Based Variable Resistor, Electric Power Research Institute (EPRI), Amount: \$5,000, [September 2023 to May 2024].
- [11] Mohd Hasan Ali (Co-PI), IUCRC Planning Grant The University of Memphis: Center for Electrified and Autonomous Transportation in Agile Freight Supply-Chains (CEATAFS), National Science Foundation (NSF), Amount: \$20,000 [August 2022 to July 2023].
- [12] Mohd Hasan Ali (Co-PI), 502 Project: Promoting Cybersecurity Awareness in Greater Memphis Area, National Security Agency (NSA), Amount: \$14,993, [February 2023 to October 2023].
- [13] Mohd Hasan Ali (PI), Inductive Coupling and Mobile Energy Disseminator-Based Dynamic Wireless Charging of Electric Vehicles, Electric Power Research Institute (EPRI), Amount: \$5,000, [March 2023 to December 2023].

- [14] Mohd. Hasan Ali (Co-PI), Identifying Opportunities for Renewables and Energy Storage in the Mid-South, The University of Memphis, Amount: \$5,000, [November 01, 2022 to June 30, 2023].
- [15] Mohd Hasan Ali (PI), Design of Mobile Renewable Micro Power Grid for Vehicles, Undergraduate Design Project Grant, Electric Power Research Institute (EPRI) , Amount: \$5,000 [January 2022 to December 2022].
- [16] Mohd. Hasan Ali (Co-PI), Identifying Opportunities for Renewables and Energy Storage in the Mid-South, The University of Memphis, Amount: \$2,500, [October 01, 2021 to December 31, 2022].
- [17] Mohd Hasan Ali (PI), Design of Novel Variable DC Link Capacitor for Solar Photovoltaic System, Undergraduate Design Project Grant, Electric Power Research Institute (EPRI), Amount: \$5,000 [January 2021 to December 2021].
- [18] Mohd Hasan Ali (PI), Design of Novel Bidirectional DC-DC Converter for Battery Energy Storage System Used in Microgrid, Undergraduate Design Project Grant, Electric Power Research Institute (EPRI), Amount: \$5,000 [January 2021 to December 2021].
- [19] Mohd Hasan Ali (PI), Design and Operation of Utility Integrated Photovoltaic (PV) System as Supercapacitor Energy Storage, Undergraduate Design Project Grant, Electric Power Research Institute (EPRI), Amount: \$5,000 [January 2020 to June 2021].
- [20] Mohd Hasan Ali (PI), Development of Behind-the-Meter Photovoltaic (PV) Power Forecasting Method, Undergraduate Design Project Grant, Electric Power Research Institute (EPRI), Amount: \$5,000 [January 2020 to June 2021].
- [21] Mohd Hasan Ali (PI) and Dipankar Dasgupta (Co-PI), Cybersecurity Issues and Solutions for 5G Technology in Smart Grid, Idaho National Laboratory, Amount: \$24,999 [June 2020 to September 2020].
- [22] Mohd Hasan Ali (PI), Travel grant to attend at the GridEd Affiliate Technology Transfer Workshop at Dallas, Texas, Electric Power Research Institute (EPRI), Amount: \$1,200 [June 12-14, 2022].
- [23] Mohd Hasan Ali (PI), Novel Design of Grid-Connected Solar Photovoltaic System, Innovation Development Grant, FedEx Institute of Technology, The University of Memphis, Amount: \$10,000 [November 2019 to June 2020].
- [24] Mohd Hasan Ali (PI) and Sajjan G. Shiva (Co-PI), Cyber-Security Testing for Hybrid Energy Storage System Located in Smart Grid, STEP Project, FedEx Institute of Technology, The University of Memphis, Amount: \$7,400 [April 2020 to June 2020].
- [25] Mohd Hasan Ali (PI) and Dipankar Dasgupta (Co-PI), Exploring Cyber Security Issues and Solution for Photovoltaic (PV) System Connected to DC Microgrid, CAST Project, FedEx Institute of Technology, The University of Memphis, Amount: \$10,000 [July 2018 to December 2019].
- [26] Mohd Hasan Ali (PI) and Dipankar Dasgupta (Co-PI), Exploring Cyber Security Issue and Solution for Energy Storage at Smart Microgrid System, CAST Project, FedEx Institute of Technology, The University of Memphis, Amount: \$20,000 [January 2017 to December 2019].
- [27] Mohd Hasan Ali (PI), A Novel Cost-Effective Method for Improving Transient Stability of Grid-Connected Wind Generator System, FedEx Institute of Technology Development Grant, The University of Memphis, Amount \$20,000 [August 2017 to August 2018].

- [28] Mohd Hasan Ali (PI), Algorithm Development to Minimize Adverse Effects of Time Delays in Smart Power Grid- Discovery and Development Grant, The University of Memphis, Amount \$20,000 [March 2017 to August 2018].
- [29] Mohd Hasan Ali (PI) and Dipankar Dasgupta (Co-PI), Investigating and Testing of Cybersecurity in Protective Relay System of Smart Power Distribution Grid, CAST Project, FedEx Institute of Technology, The University of Memphis, Amount: \$10,000 [January 2017 to August 2018].
- [30] Mohd Hasan Ali (PI), Travel grant to attend at the GridEd Affiliate Technology Transfer Workshop at Westminster, Colorado, Electric Power Research Institute (EPRI), Amount: \$1,000 [April 03-04, 2018].
- [31] Mohd Hasan Ali (PI), Exploring Functional Capability of VOLTTRON™ Software for Building Automation Systems Control, Department of Energy (DOE), Amount: \$45,000 [February 05, 2016 to February 04, 2017].
- [32] Mohd Hasan Ali (PI), Short Term Imbalances Mitigation in Micro-grid System by Combination of Intelligent Control-Based Supercapacitor Energy Storage and Electric Vehicle System, Department of Energy (DOE), Amount: \$45,000 [February 05, 2016 to February 04, 2017].
- [33] Mohd Hasan Ali (PI), Maintaining Distribution Relay Protection Coordination by Using Bridge Type Fault Current Limiter, Memphis Light, Gas and Water (MLGW) via American Public Power Association (APPA), Amount: \$52,303 [September 2015 to August 2016].
- [34] Mohd Hasan Ali (PI), Development of a Power System Educational Program, Memphis Light, Gas and Water (MLGW) via American Public Power Association (APPA), Amount: \$52,303 [September 2015 to August 2016].
- [35] Mohd Hasan Ali (PI), Development and Testing of a Supercapacitor Energy Storage System Model Through RTDS, Idaho National Laboratory, Amount: \$35,000 [July 2015 to September 2016].
- [36] Mohd Hasan Ali (PI) and Dipankar Dasgupta (Co-PI), Investigating and Testing of Cybersecurity in Protective Relay System of Smart Power Distribution Grid, CAST Project, FedEx Institute of Technology, The University of Memphis, Amount: \$13,000 [November 2015 to December 2017].
- [37] Mohd Hasan Ali (PI), Mitigation of Geomagnetic Induced Current (GIC) Effect on Power Transformers, FedEx Institute of Technology, The University of Memphis, Amount: \$32,800 [July 2014 to August 2015].
- [38] Mohd Hasan Ali (PI), Development of an Algorithm to Mitigate Adverse Effects of Time Delays on the Smart Grid, FedEx Institute of Technology, The University of Memphis, Amount: \$36,119 [September 2013 to August 2014].
- [39] Mohd Hasan Ali (PI), High Electric Power Testing Facility, FedEx Institute of Technology, The University of Memphis, Amount: \$15,000 [July 2013 to August 2013].
- [40] Mohd Hasan Ali (PI), Start-Up Fund, The University of Memphis, Amount: \$115,000 [September 2011 to August 2013].