

Project #12 – Meta-Heuristic Optimization of Last Mile Deliveries by Electric Vehicles in Rural Areas Using Synchronized Routing and Resupply Strategies

Project Start and End Date: 07/01/2024 – 06/30/2025

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1. Accomplishments during this reporting period

1B. What was accomplished in this reporting period?

The three most significant accomplishments are (1) literature review (2) discuss with NCDOT for application, and (3) Preliminary model development

1C. What opportunities for training and professional development has the program provided?

This project provides graduate and undergraduate students opportunities to understand real world freight transportation problems and learn tools to solve the problem.

1D. How have the results been disseminated?

We are in the development of preliminary model. It will be shared with stakeholders and disseminate in conferences.

1E. What do you plan to do during the next reporting period to accomplish the goals?

We will complete the model development and testing and report the findings to stakeholders.

2. Participants & Collaborating Organizations

2A. What organizations have been involved as partners?

NCDOT is our partner in the project, and they have helped us develop applications. The contact person is Ms. Nastasha B Earle-Young.

2B. Have other collaborators or contacts been involved?

None to report

3. Outputs

No outputs to report.

4. Outcomes

4A. Increased understanding and awareness of transportation issues

This project has the potential to increase the awareness of last mile delivery using EVs in rural areas.

4B. Passage of new policies, regulation, rulemaking, or legislation

Nothing to report

4C. Increases in the body of knowledge

This project will contribute to the synchronization routing and resupply strategies of last mile deliveries using EVs.

4D. Improved processes, technologies, techniques, and skills in addressing transportation issues

This project focuses on the use of EVs in rural areas for last mile delivery and has the potential to address freight transportation issues.

4E. Enlarged pool of trained transportation professionals

This project provides education and professional development opportunities for both undergraduate and graduate students to be trained to address transportation related problems and has the potential to increase the number of trained professionals.

4F. Adoption of new technologies, techniques, or practices

Nothing to report

5. Impacts

Nothing to report for Items 5A—5C.

5D. What is the impact on transportation workforce development?

The project has been used as case studies that are included in teaching undergraduate and graduate courses.

6. Changes/Problems

No changes or problems to report.