

## View results

Respondent

8

Nishant Garg

18:52

Time to complete

1. Date of this semester progress report submission \*

12/15/2024

2. Name of project exactly as it was listed in your award letter \*

Automated Waste Classification via Computer Vision

3. Date of original award letter \*

12/04/2023

4. Date of expiration listed on award letter (or on scope change approval if more recent) \*

12/03/2025

5. How much was your award (i.e., original award plus any approved budget increases)? \*

\$96600

6. How much of your award has been spent to date (in dollars)? \*

\$31800

7. Date of forecasted project completion \*

12/15/2025

8. Have you submitted one or more semester progress reports previously? \*

YES

NO

9. Describe, in detail, what has been completed on the project since the last semester progress report (or since the project commenced if you have not yet submitted a semester progress report)? \*

Since last semester, we have been working on improving the accuracy of our trained models for real-world applications. To facilitate this, we have set up RTSP-supported cameras to stream live video of the conveyor belt in real time. This setup will allow us to monitor waste movement remotely from anywhere on campus through the Illinois guest internet. While the cameras have been set up, they have not yet been integrated into the waste transfer station (WTS) at U of I. This step will be essential for further refining our models and validating their performance in real-world applications.

10. Describe, in detail, the project's challenges/obstacles since your last semester progress report (or since the project commenced if you have not yet submitted a semester progress report)? \*

Since the last semester of the project, the challenges faced have been optimizing model accuracy in real-world conditions and dealing with variable lighting and occlusion. While our model has performed well in a controlled environment, real-time implementation introduces variability in lighting and object position, affecting accuracy. Moreover, occlusion is another challenge, as overlapping or partially hidden waste items on the conveyor belt make detection difficult, leading to misclassification or missed detections. To address this, we are exploring advanced segmentation techniques to enhance detection accuracy.

11. Describe, in detail, the project's successes since your last semester progress report (or since the project commenced if you have not yet submitted a semester progress report)? \*

One of the key successes since last semester has been setting up RTSP-supported cameras to capture a live feed of the conveyor belt at WTS. Previously, there were no means of obtaining real-time video of the waste stream, but with this setup, we can now remotely monitor and analyze waste movement from anywhere on campus through the Illinois guest internet. This is crucial for real-time data collection and lays the foundation for integrating our waste classification model into practical applications.

12. Did your project have any changes to its team that SSC should know about (e.g., project lead, faculty/staff advisor, departmental financial contact)? \*

**NOTE: If yes, please complete the SSC Project Contact Information Change Form located at this link: <https://forms.office.com/r/uBjx9nmNpG>**

- YES  
 NO

13. Complete and upload the semester financial documentation for your project. You should reflect all expenditures since your last semester project report. We strongly suggest that you also upload supporting financial documentation from Banner for your award CFOP. NOTE: When your project is completed and/or expired (whichever comes first), any remaining project funds will be transferred back to the SSC.

<https://studentengagement.illinois.edu/sites/default/files/2024-09/SSC-Budget-Timeline-SEMESTER-PROGRESS-REPORT-template.xlsx>

\*

 [SSC-Budget-Timeline-SEMESTER-PROGRESS-REPORT- Nishant Garg\\_1.xlsx](#)

14. (OPTIONAL FOR SEMESTER REPORT) Upload project marketing and/or media not previously submitted in semester progress reports.

**NOTE: Project marketing and/or media must include SSC's logo and/or a statement of which fee(s) funded the project.**