



## SIMATS ENGINEERING



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**Course Code:** DSA0216

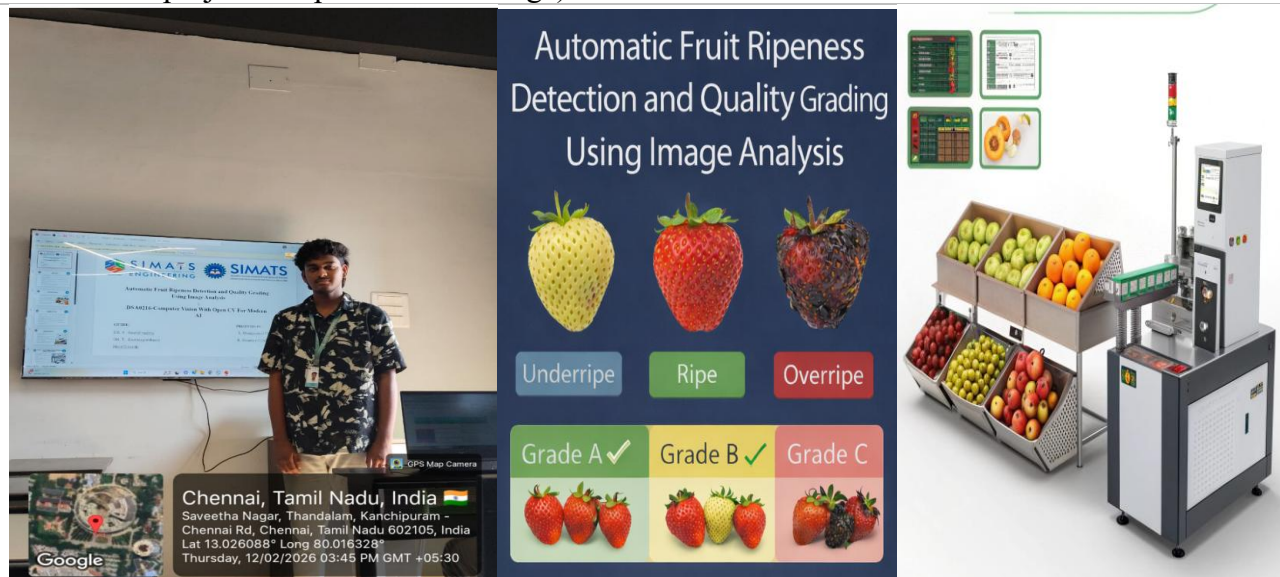
**Slot:** B

**Course Name:** Computer Vision with OpenCV for Modern AI

**Course Faculty:** Dr. Senthilvadivu S, Dr. Kumaragurubaran T

**Project Title:** Automatic Fruit ripeness Detection and Quality Grading Using Image Analysis

**Module Photographs:** (3 photographs –Module Photo, Individual student contribution module work in the project and presentation image)



**Project Description:** (here you write what you did in this project (contribution) including Model Description)

1. Apply HSV color masking to isolate fruit pixels from the background.
2. Use Grab Cut segmentation for refined foreground extraction.
3. Extract dominant fruit contour using contour detection methods.
4. Validate segmentation using Io, histogram accuracy, region purity, and shape consistency.
5. The image is pre-processed by resizing, noise removal, and converting to HSV colour space.
6. The system captures fruit images using a camera under controlled lighting conditions
7. Apply morphological operations (opening and closing) to remove small false regions and improve the continuity of the segmented fruit area.

**Student Signature**

**Guide Signature**