Ahmedabad University

Weekly Report-6

Project Title

"<u>Road Markings Detection and Measurement in Aerial Imagery</u>"

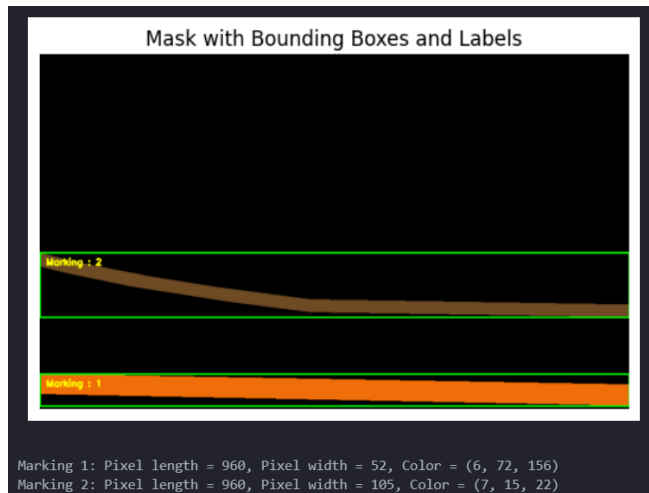Date of Submission: 30-03-2024

Group Details:

| Enrolment No.	AU2140001	AU2140017	AU2140032	AU2140149
Student Name	Adnan Kadiwala	Vandit Shah	Dhruv Hingu	Het Patel

Prior Week Recap:

- We successfully obtained the road marking mask using the segmentation approach. However, we only acquired a binary mask instead of the five classes present in the ground truth of the dataset.

This Week's Work:

- Despite efforts to find relevant code, we faced difficulties in implementing multiclass classification. This aspect of our work is still in progress.

- We initiated the task of mapping *pixels* to *centimeters* for the road marking. To proceed, we require the Ground Sampling Distance (GSD) from Yagnik Sir. This information will allow us to establish the ratio between pixel measurements and real-world dimensions.

- Hence, we focused on calculating the pixel lengths and widths of the masks obtained in the binary format. The output images for the process and results are given below:

Mask with Bounding Boxes and Labels

Marking 1: Pixel length = 960, Pixel width = 52, Color = (6, 72, 156)
Marking 2: Pixel length = 960, Pixel width = 105, Color = (7, 15, 22)

Mask with Bounding Boxes and Labels

Marking 1: Pixel length = 719, Pixel width = 187, Color = (150, 150, 151)
Marking 2: Pixel length = 24, Pixel width = 126, Color = (0, 64, 64)
Marking 3: Pixel length = 35, Pixel width = 131, Color = (105, 92, 60)
Marking 4: Pixel length = 110, Pixel width = 310, Color = (11, 19, 27)
Marking 5: Pixel length = 40, Pixel width = 170, Color = (88, 77, 50)
Marking 6: Pixel length = 41, Pixel width = 184, Color = (88, 77, 50)
Marking 7: Pixel length = 71, Pixel width = 358, Color = (7, 13, 20)

- In these results, we are still not obtaining the exact bounding area for the road markings, so our pixel length and width results are still inaccurate.
- (Currently, we have tried it on ground truth using the cv2 library for finding the bounding box around the masks).
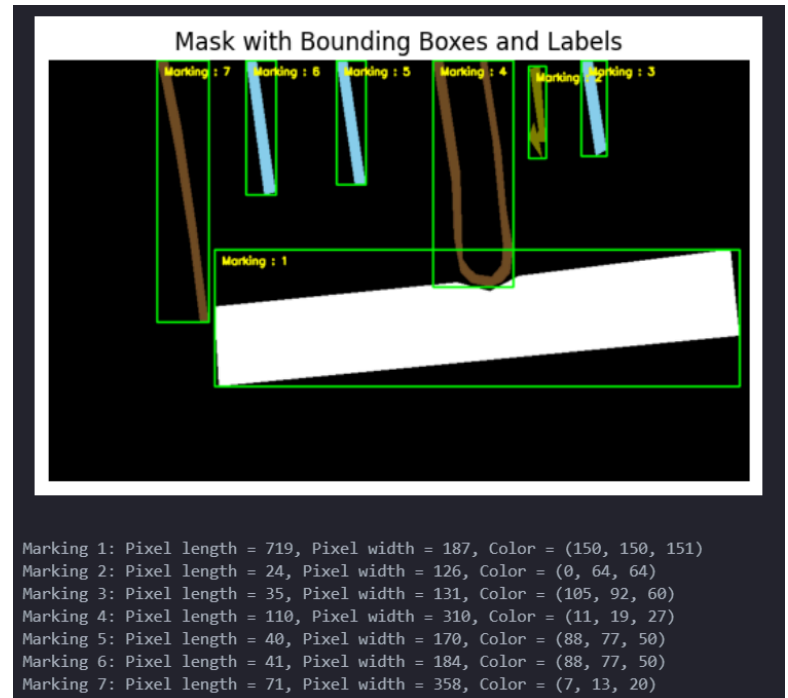
Next Week's Tasks:

- Half of our team will concentrate on resolving the challenges with multiclass masking.

- The other half of our team will collaborate with Yagnik Sir to obtain the GSD and proceed with the mapping process. This will facilitate accurate measurement of the road marking from aerial imagery.