Project 3: Face Detection, Tracking, and Recognition Plan

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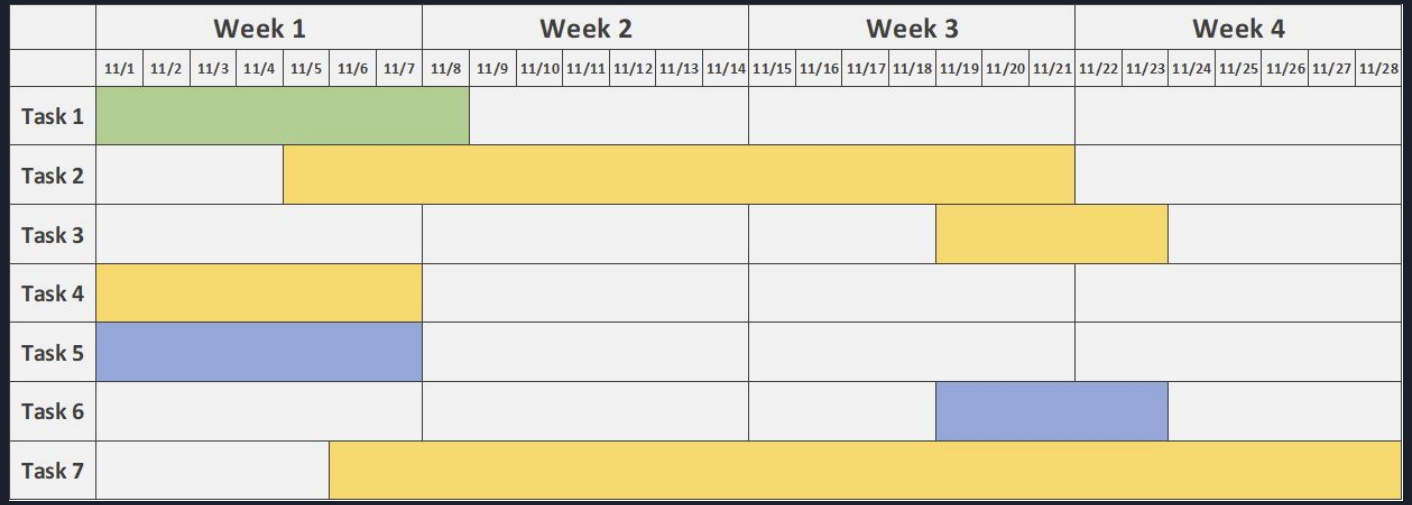
Key Tasks

1) Train the YOLOv5S Model [1] such that it can detect faces (from front/side).
    a. Record accuracy score of face detection from training
    b. Record accuracy based on distance from camera
2) Implement a system so it simultaneously detects, tracks [2] and recognizes [3] two different faces (Eric & Hansi).
3) Design a live demo so the system output can be captured on Zoom.
4) Determine the full field of view of the camera, and the angular resolution.
5) Determine the farthest distance from camera that the system can accurately operate.
6) Record the power, temperature, and resource utilization of the system during operation.
7) Work on presentation results.

Schedule & Roles



Roles

Blue - Hansi Green - Eric Yellow - Both

Tasks

1. Train YOLOv5 Model on Face
2. Implement a system for detection, tracking, recognition
3. Design live demo for Zoom
4. Determine camera FOV and angular resolution
5. Determine max distance from camera for system operation
6. Record system resource usage
7. Work on final presentation

References

1) YOLOv5 Library

   https://github.com/ultralytics/yolov5

2) YOLOv5 + DeepSort

   https://github.com/mikel-brostrom/Yolov5_DeepSort_Pytorch

3) Face Recognition

   https://github.com/ageitgey/face_recognition