Alpha Presentation
Trailering Safety Using Computer Vision

The Capstone Experience

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Project Overview

• Ensures trailer-hitch connection is secure.
• Prevents:
  ▪ Injuries
  ▪ Vehicle Accidents
  ▪ Vehicle Damages
• Analyzes image or video for component identification.
• Returns pass/fail score based on checklist.
System Architecture
Incomplete Hitch

The image shows a computer screen with a program assessing the hitch connection. The program indicates:

- **Chains Connected**: FAIL
- **Hitch Connected**: PASS
- **Tongue Locked**: PASS
- **Cable Connected**: FAIL

The overall status is marked as **INCOMPLETE**.
Close-Up: Incomplete Hitch
Complete Hitch
Close-Up: Complete Hitch
What’s left to do?

• Label: current data + pending more data
• Expand dataset: imitate rain/glare/dirt in camera
• Tune model: detect all components
• Tune script: handle frame extraction
• Add video handling to UI
• Add next/previous 10 images feature to UI