



# Autonomous TMA Truck (ATMA) Verifying Performance





# System Testing

- Initial testing and safety analysis performed by Kratos
- Colas UK partnered to conduct further tests and development







# Scenario-Based Evaluation

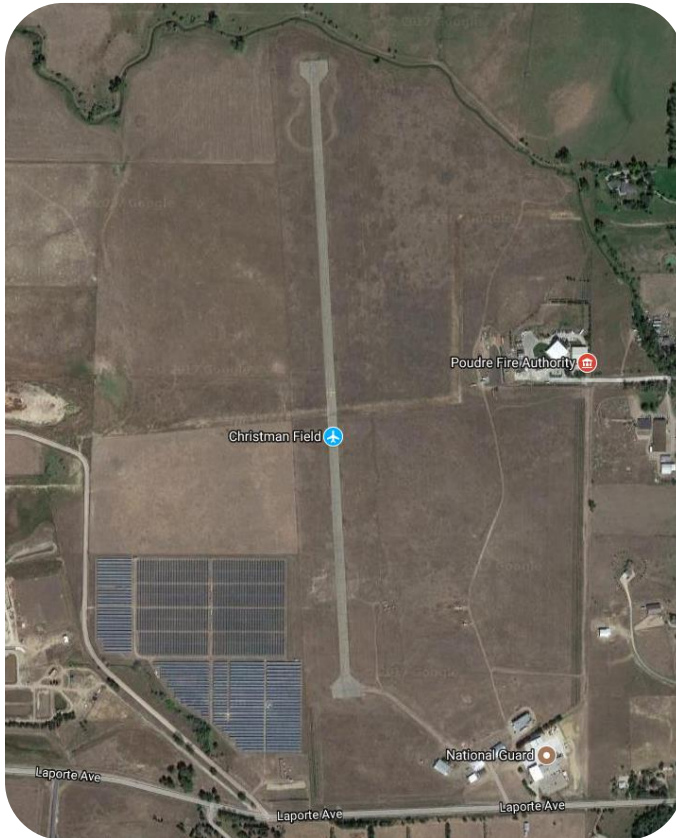
- Developed set of scenarios to verify the system's capabilities
- Focused on verifying safe, predictable operation
- Ran on a closed track over two weeks

## Goals:

- Confirm system safety
- Understand capabilities and how the system reacts
- Determine additional needed capabilities
- Build comfort with the system
- Discover any anomalies/limitations



# Closed Track Environment





..And That Means Handing it Over to  
our Tame Racing Driver







# Sample Scenarios

- Verify all e-stops
- Performance under hard braking & acceleration of leader
- Obstacle detection capabilities
- Lateral accuracy
- Tight turns
- Loss of GPS
- Loss of communications
- Bump Steer
- Sensitivity to passing vehicles





# Results

- Consistent and safe e-stop performance
  - Stops in about 2m at striping speed
- Cross track error below  $\pm 4$  in.
  - $\pm 1.6$  in. at 7mph,  $\pm 3.1$  in. at 15mph
- Consistent gap distance
- Safe radar detection distance
- Programming changes implemented and verified

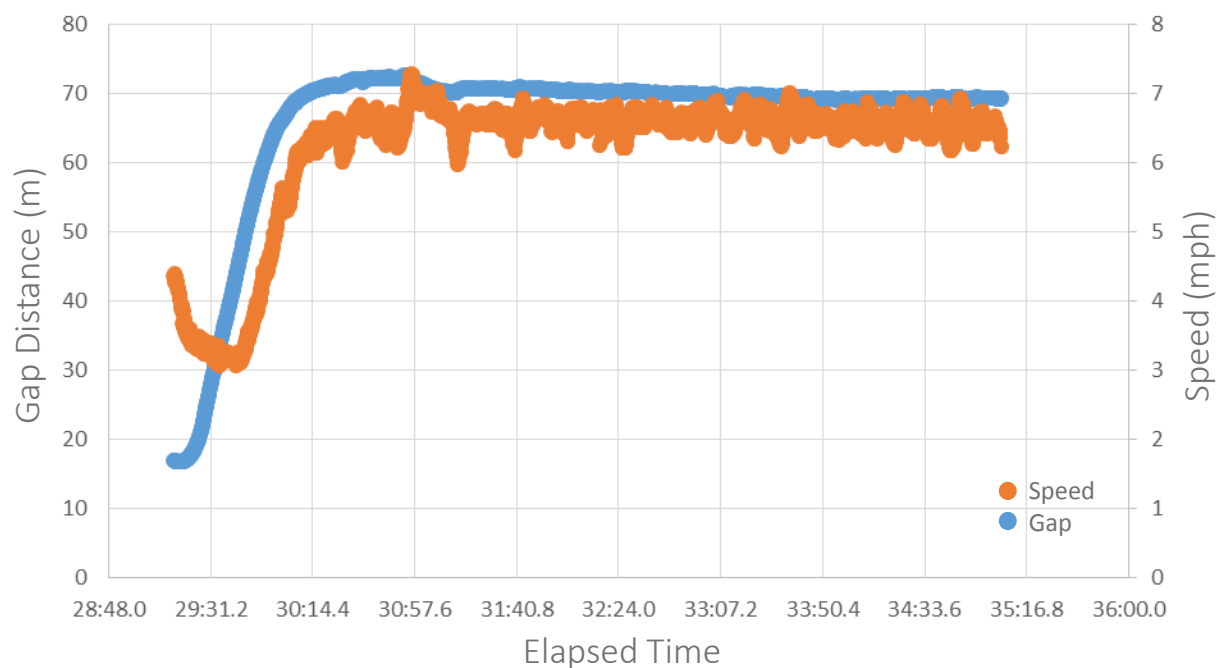
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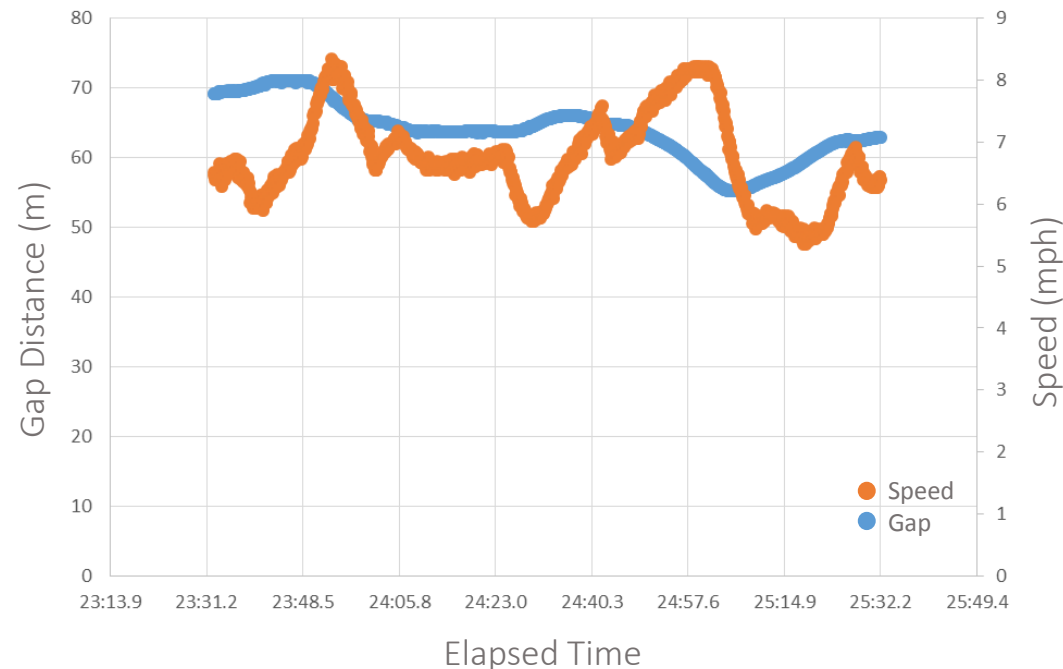


# Gap Control Sample Results

Actual Gap Distance and Speed (Automated System)



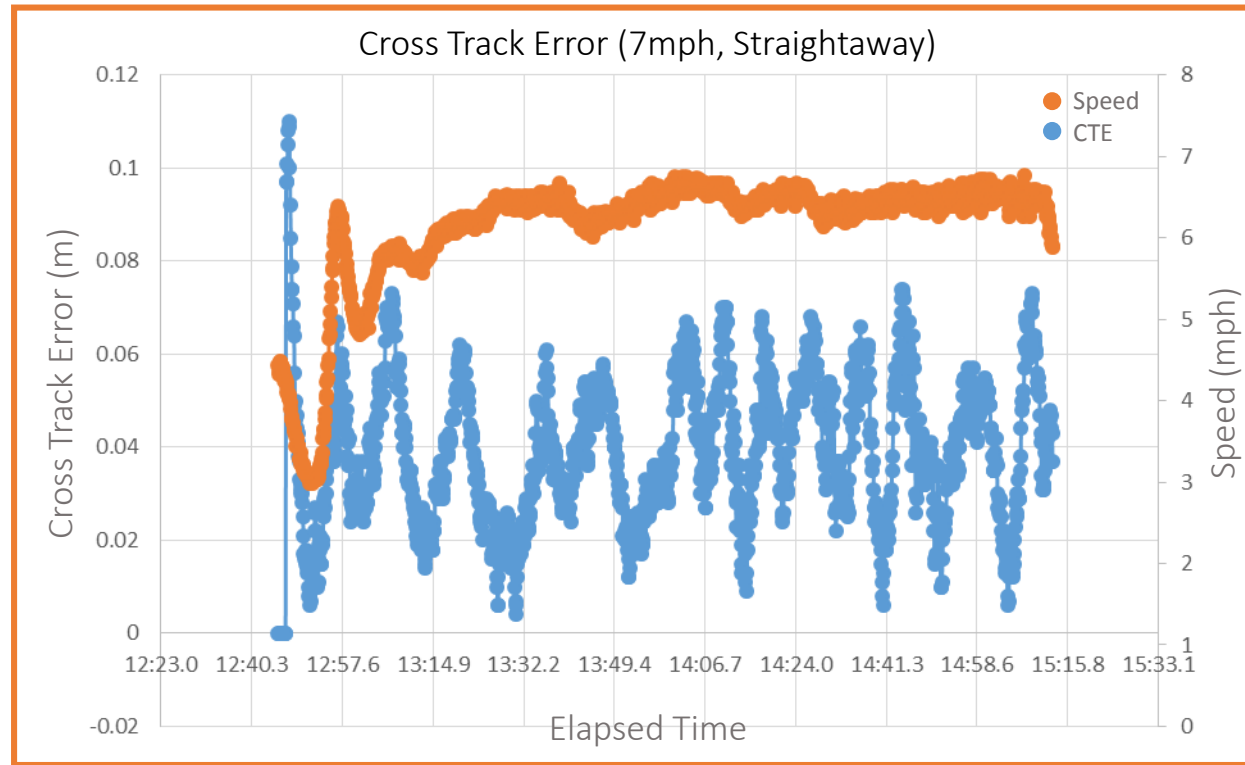
Actual Gap Distance and Speed (Human Driver)





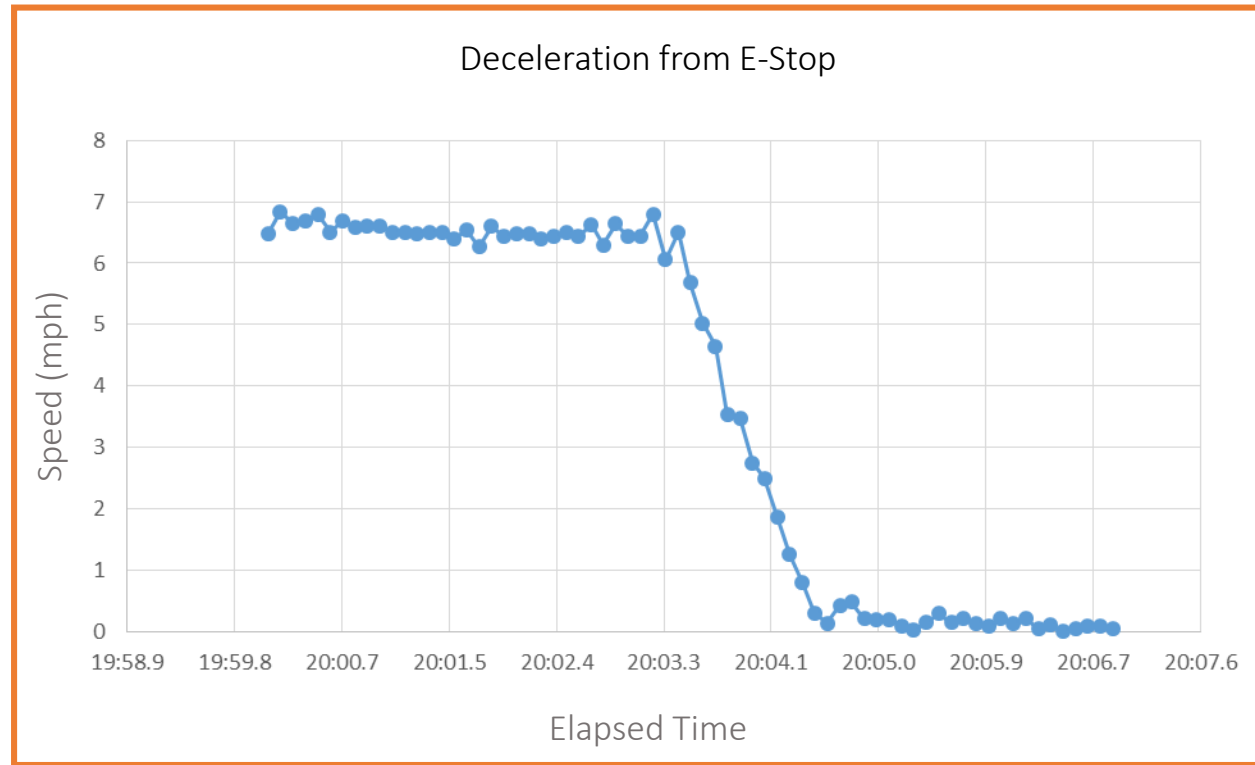


# Cross Track Error Sample Results





# E-Stop Sample Results





# Videos







# Questions?

