NDSU | COMPUTER SCIENCE

Capstone 2025

Digital Twin 3D Representation
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Razor Tracking

Business Need

- Interactive simulations that showcase our monitoring technology in action

- Demonstrates real benefits: safety, efficiency, and smarter decisions

- Dual-purpose: powerful for sales presentations and practical for operator training

Tools Used

Intended Solution

- Transforms timestamped fleet data into immersive 3D replays of vehicle movements and safety events

- Navigate through a modeled environment to review fleet behavior at any point in time

- Powerful analysis tool that improves safety outcomes through visual insights

Challenges

1. GPS data refinement presented technical challenges.

2. Larger file management required strategic optimization.

3. Code harmonization across team members demanded adaptive approaches.

Conclusions

1. Open-source software offers invaluable flexibility and community-driven solutions.

2. Enterprise software delivers professional polish, enhancing project quality.

3. Strategic engine selection is critical to project success.

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