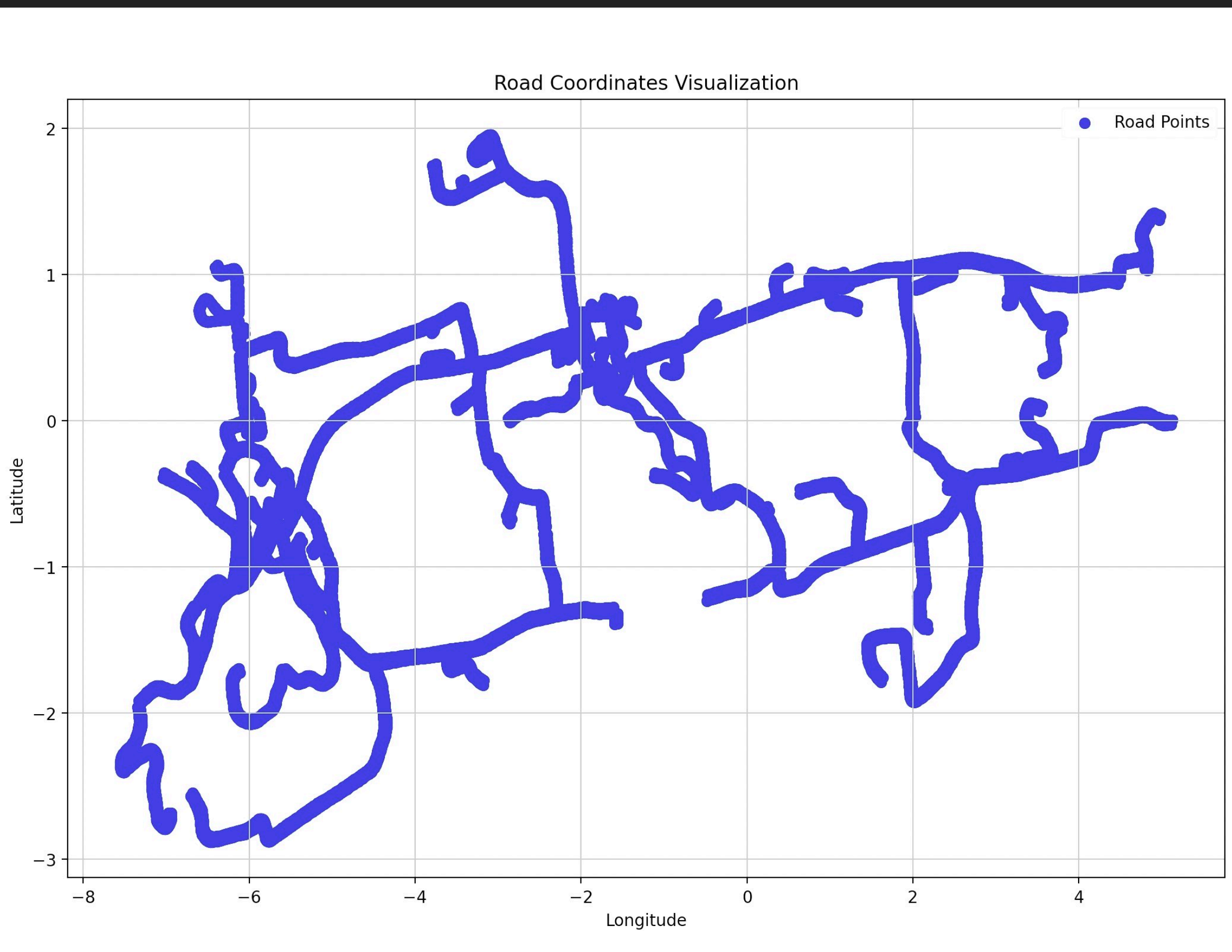


THE TRUCKERS

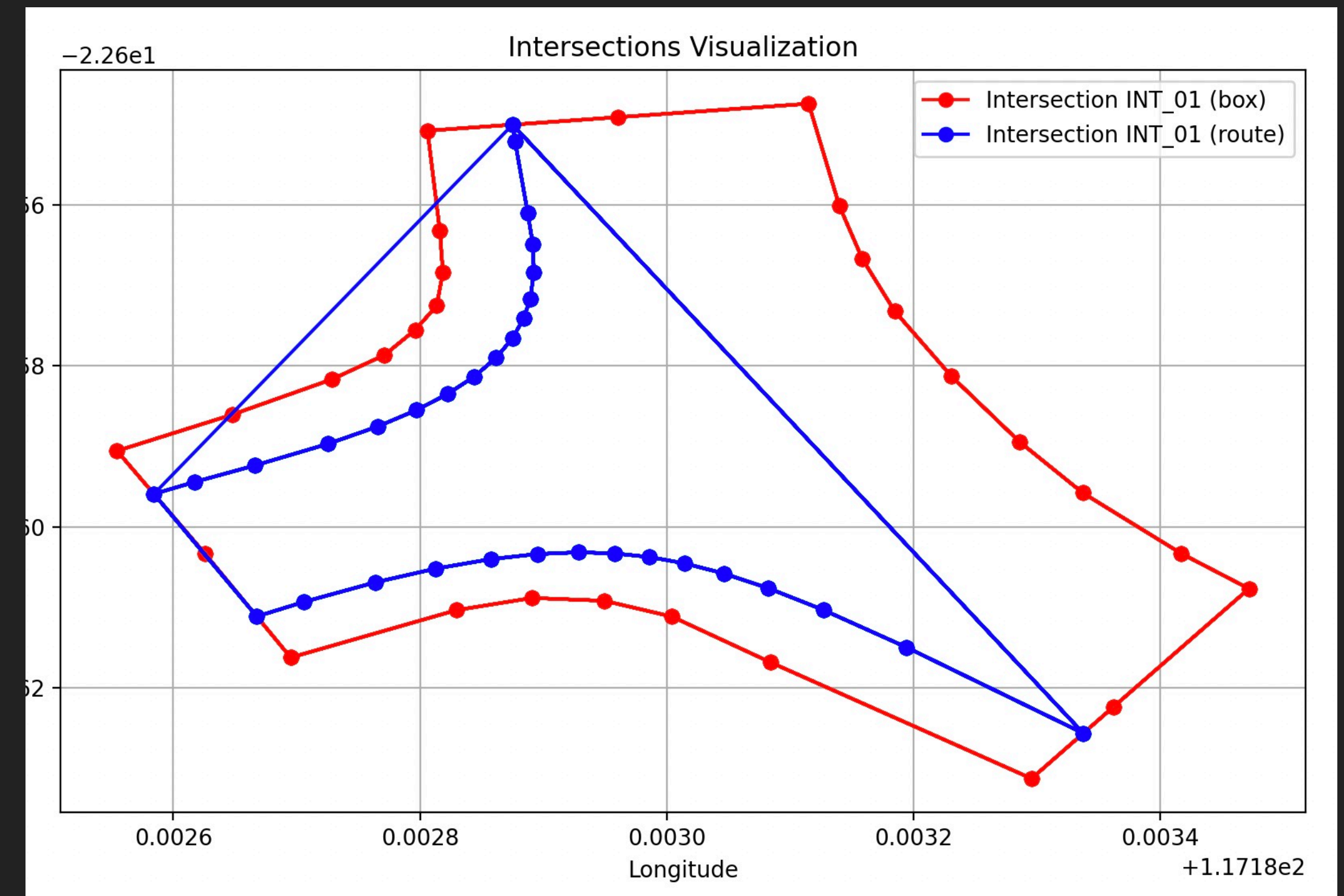
OUR SOLUTION



PROBLEM CASE

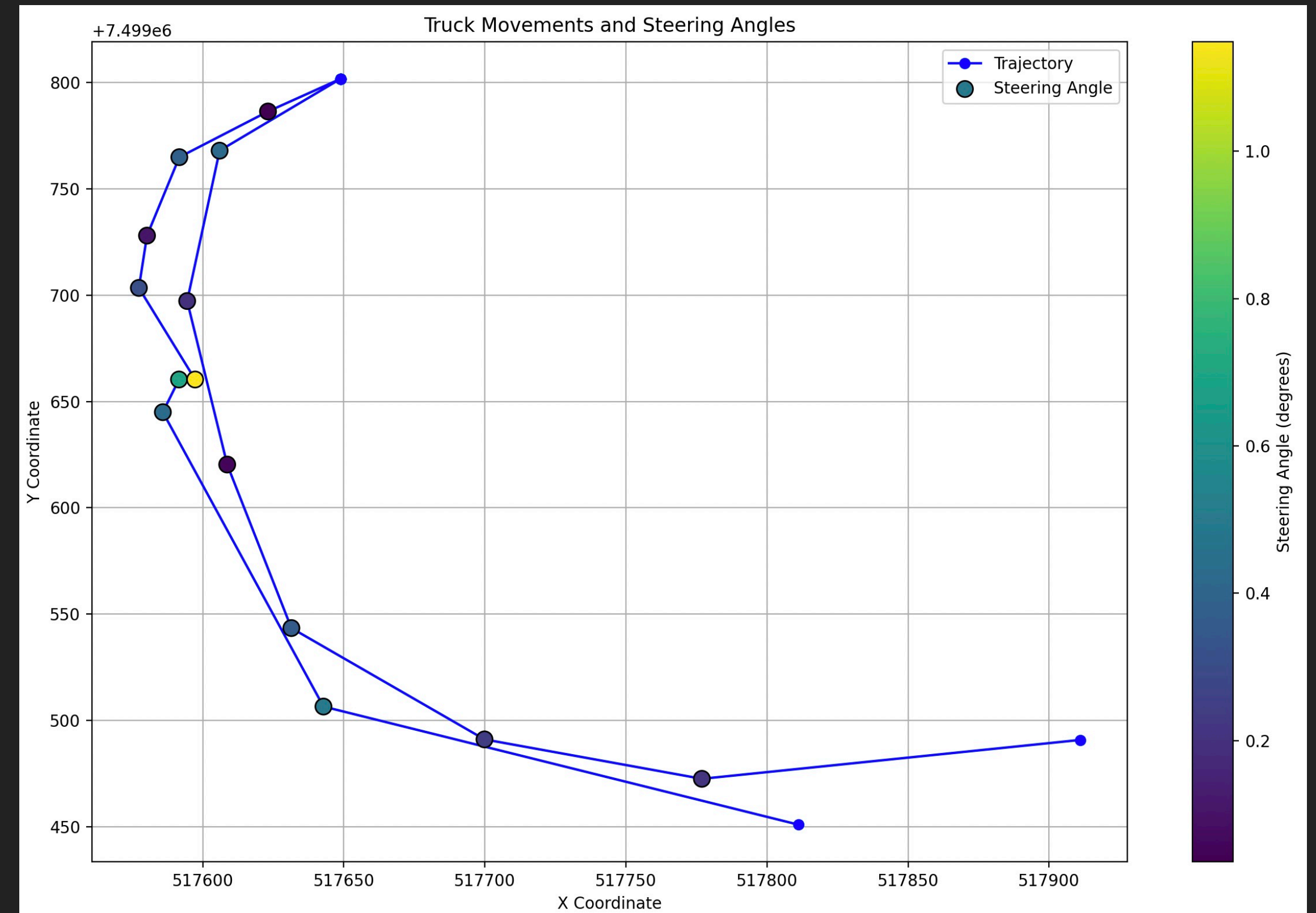
CHALLENGE

- ▶ Given a set of coordinates which map a T-junction, Determine the most efficient path for trucks navigating through said junction.
- ▶ What is an appropriate way to grade a chosen path as a "good" one?
- ▶ Ensure that the path lies within the given constraints for safe operation.
- ▶ We cannot modify Frontrunner as it's externally managed.



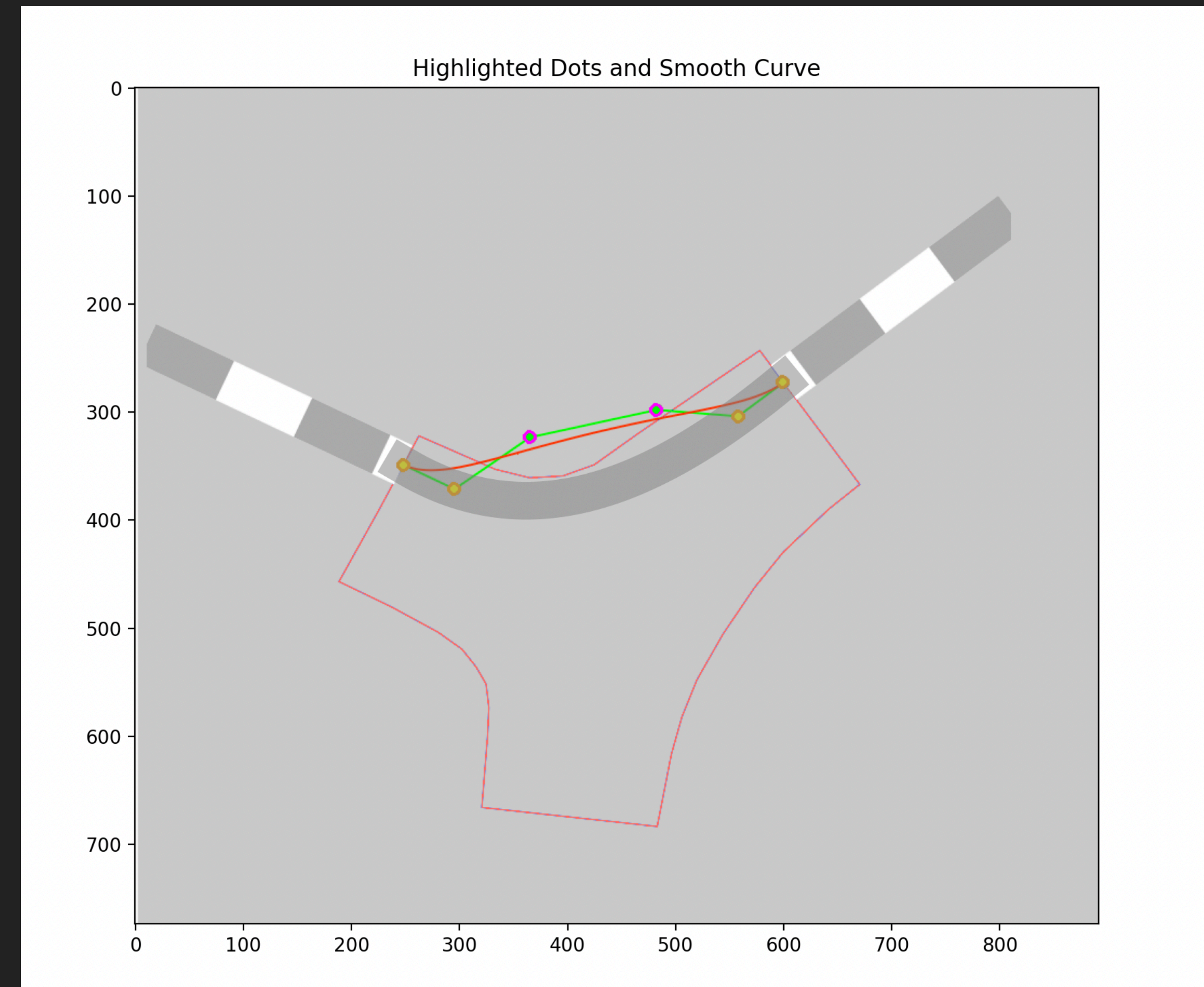
IDENTIFYING A GOOD CURVE

- ▶ Highlighted areas with high steering angles (yellow) indicate potential sharp turns that should be minimised.
- ▶ Sections with low steering angles (green) represent smoother paths that are preferable for maintaining truck stability and safety



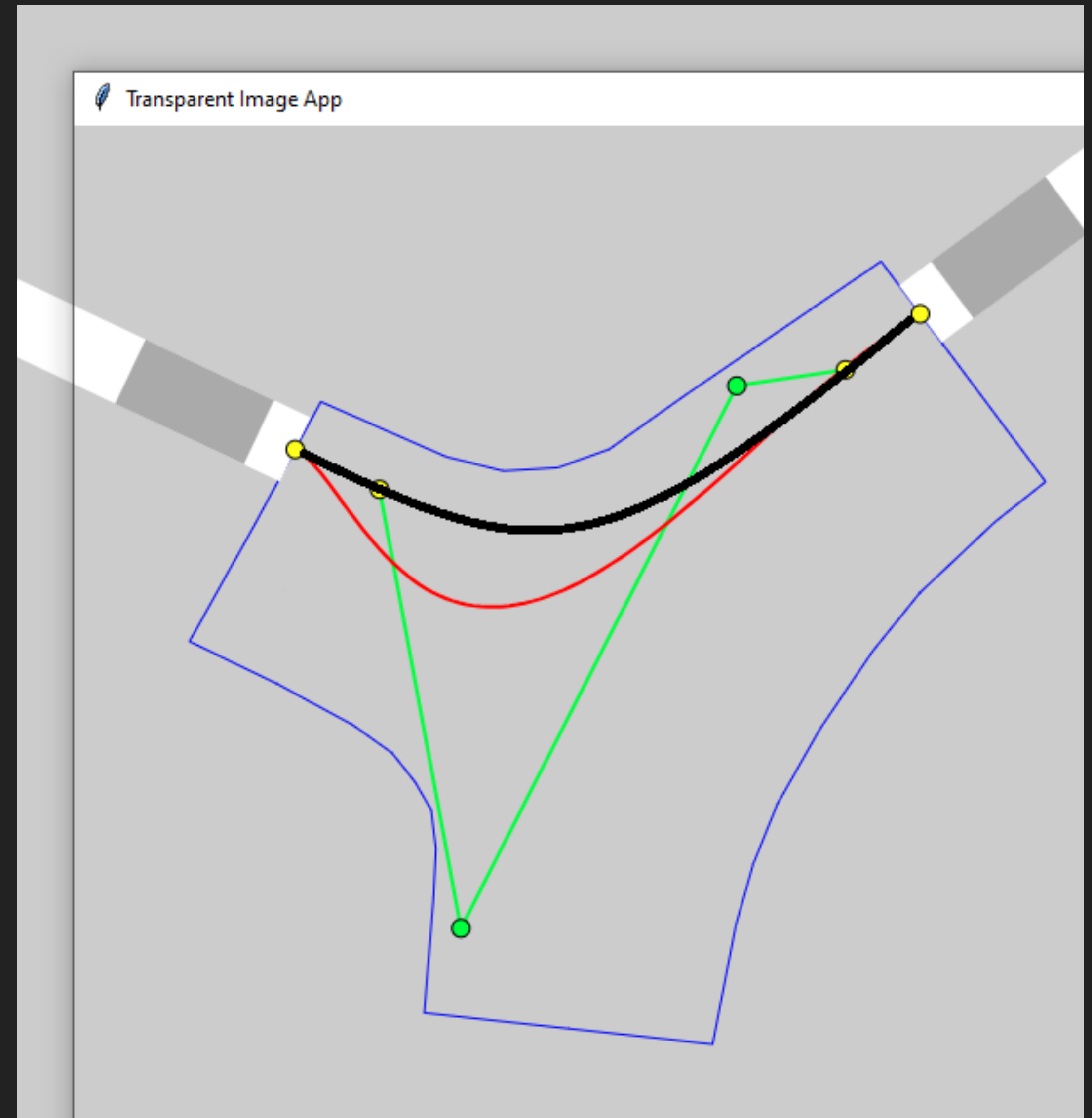
PROPOSED SOLUTION

1. Capture Frontrunner
2. Calculate best curve
3. Show stencil (mouse automation)



INTEGRATION

- ▶ Frontrunner operates as a black box.
- ▶ We need a way to manually adjust Frontrunner's path through a junction and change it to align with our proposed path.
- ▶ Using computer vision to extract the control point coordinates, we can overlay a visual path as a stencil on the Frontrunner control software.
- ▶ Ideally, we would use mouse automation to adjust the Bezier curve accordingly.



IMPROVEMENTS

- ▶ Further develop the application to allow stencil to seamlessly overlay the Frontrunner control software. The user shouldn't need to move the stencil to modify the path beneath
- ▶ Develop a unified application to calculate the optimal path as well as overlay the path onto control software.
- ▶ Implement mouse automation for adjusting bezier curve.