AR:IN

Autonomous Robotics: Intersection Navigation

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Who is AR:IN?

AR:IN is the Intersection Navigation team of Autonomous Robotics. Our team focuses on expanding the capabilities of autonomous vehicles to safely navigate intersections. Here at AR:IN passenger safety is the priority and we work to ensure that our product does whatever it can to protect our passengers from harm. Self navigating vehicles will improve traffic flow and have many benefits to the environment so we will try to be at the forefront of the revolution.

How will it work?

Using line recognition for track following and identify common road markings stop signs and intersections. Using existing obstacle recognition technology to identify obstacles, pedestrians and approaching stop signs/intersections. The vehicles will be able to communicate with each other to determine right of way at intersections dependant on the type of intersection. The vehicles will take order of arrival, intention at intersection, position at intersection, and type of intersection into consideration when determining how to proceed.

What is the necessity for this project?

As more and more automotive companies are working to make self driving cars a reality, it is essential that they will be able to obey the rules of the road and safely navigate through various types of intersections. Increasing the efficiency of progress through intersections would have environmental benefits along with reducing traffic. Less gas would be burnt by vehicles due to less idling at the intersections and the overall reductions would contribute to the economy based off saving consumers more time. Infrastructure would have a lesser workload which would save money in repairs from wear and tear as well as reducing the need to accommodate increasing traffic.

Goals for Success:
- Design a system of 2 (or more) autonomous cars that can:
    - Follow a track
    - Avoid obstacles
    - Recognize and stop at a stop sign
    - Determine who has the right of way
    - Communicate with each other
    - Proceed safely through the intersection when possessing the right of way
    - Follows the rules of the road

Extended goals:
- Recognise and stop at an intersection with traffic lights
- Distinguish between 1,2,3 and 4 way stops
- Handling multi-lane intersections