Homework 11

CS 555

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A new strategic approach for driverless cars would to be to expand the driverless car into specialty vehicles. To be more specific, into delivery vehicles like mail, packages, food, etc. The intent in this approach is to diversify the clientele of Driverless Cars and give a more legitimate reason to its products. This reason is efficiency. The company should follow an investment theme of 65% to self-driving cars and 35% specialty delivery vehicles. This is because the company cannot just focus on specialty products and the specialty product is based upon the original idea and therefore depends on it. This task is going to require two releases of features to function.

The first is the Loading Procedure.

The second is the Stop and Deliver procedure

The Loading Procedure is so the driverless delivery vehicle can wait at the source facility to have the product to be delivered loaded on to it. This includes large delivery services like mail truck waiting at the post office for a load, closing up the truck and leaving, as well as small delivery services like a pizza delivery car waiting at the store, accepting the pizza, closing the door and leaving.

The Stop and Delivery procedure completes the actual delivery of the product. This would be any delivery car finding the house or building it must deliver to and stop in front of it. For the purpose of this prototype idea, we will have a deliveryman for the sake of getting the packages from the truck to the mailbox or door. Once perfected, the company can design an automated system for actual delivery.

5 stories will be made to implement each feature. Each story will have at least one task to implement in it.

Loading Procedure

1. Delivery vehicle must self-park into designated load zone
   1. The team must implement sensors to detect a user implemented designated zone bound by the constraints set forth by the developer.
2. Delivery vehicle must know when it is to come back for loading.
   1. The development team must have a service where it can call back the vehicle for loading. The vehicle must also have some sort of weight tracker to know when it is empty to return. The vehicle must also be able to return when it completes its route. The development team should make the starting point also the end point in its route.
3. Delivery vehicle must know when to leave loading area
   1. The development team must be able to have a system where it can alert the vehicle when loading is done so it may leave.
4. Delivery vehicle must turn engine off and stay in park when loading.
   1. The development team must make sure that the vehicle knows it must keep the engine off and remain in park only during the loading phase.
5. Delivery vehicle must safely navigate out of loading area.
   1. The developers must make sure the delivery vehicle can avoid any hazards, people or other vehicles in the loading area

Stop and Delivery

1. Delivery vehicle must know when it is time to come in for maintenance
   1. The same kind of work that goes into a check engine light, a low tire pressure light, low gas or any other kind of self-maintenance will need to be applied
2. Delivery vehicle must know where the closest maintenance site is, how to get to it, and what to do if it cannot reach it.
   1. The delivery vehicle must use GPS to discover where the nearest service station is. The service stations will be handled by the company. If it a gas issue, the vehicle must locate the nearest gas station with GPS. Once the destination is located, the development team must make sure the vehicle has the appropriate mapping software to add the destination as the next stop in its route. If the vehicle determines that it cannot make it to the destination because of distance or it is not capable of moving, it must alert the team for help.
3. Delivery vehicle must be able to find the target destination for delivery currently next in its queue.
   1. The development team needs to implement a mapping and GPS system so the vehicle can know when it is at the target destination or how to get there.
4. Delivery vehicle must stop safely at the target destination.
   1. To make the delivery the vehicle must know when it is at the target destination and then safely stop, avoiding hazards, blocking driveways, other cars, and blocking fire hydrants while using appropriate blinkers
5. Delivery vehicle must turn on hazard lights when stopping
   1. The vehicle should know when it is entering the stopping procedure and turn its hazard lights on.