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CS 370 Current and Emerging Trends in CS

Module One Assignment

* **Describe a real-world problem that would benefit from the application of AI.**

The issue I chose to think about is about self-driving cars and what they could potentially do to help users, especially those that are now finding it harder to get to work as they have moved further out of the normal considered commercial districts of the city they live in.

The reason why I feel that this is a problem is that as the cost of living has kept increasing it has led to the mass exodus of workers in larger cities to begin to look for new places to live which in turn has made the commute for these workers longer as a lot of the homes with lower rent tend to be further away from the city, for instance we can see that for new York the average rent is $3,735 where as the average rent is $2,309 which shows about 62% higher rent for people that live in new York compared to Maplewood. Another thing to look at is the amount of time that it takes around 41 minutes by car. A lot of this could be fixed by having a smarter traffic system.

* **Propose a solution to a real-world problem by describing applicable AI techniques.**

The solution to this that I could find is to use self-driving cars that could solve a lot of the traffic that happens between New York and Maplewood, mainly as this system would be able to choose better routes than how some ordinary drivers may choose to get to the middle of New York city. Another thing that could potentially be useful is to have the car be able to work as a cab or similar service while their owner is at work which could then make the owner of the car more money as a result.

* **Identify necessary system components, such as hardware or services, needed for your solution.**

Some of the obvious things I can think of what a car would need is the ability to see the world which can be done in a number of different ways but most likely will be similar to how Tesla currently handles it. The way that tesla used to do this for their semi-autonomous driving is by using a combination of forward-facing radar, cameras, and ultrasonic sensors. They way that they are currently going about it is a lot more technical by using computer vision that is trained to recognize and interpret the world happening around the car, the main reason they came to this solution instead is the lower overall complexity and cost of developing this type of driving because as a research paper from Cornell University proposed “that stereo cameras have the potential to generate a 3D map that is almost as precise as a LiDAR map. This presents an interesting point, as it indicates that instead of investing $7,500 in a LiDAR device, one could use a few cameras that are much cheaper, costing only $5.”, another reason I think it would be smart to use this type of system is that the code that runs the vehicle can be less overall complex and require less lines than other solutions such as LiDAR or even Tesla’s old solution which Elon Musk believes to be more effective and cost-efficient.

A service that would also be necessary is a way to link to either someone’s phone or have some sort of map software built-in, I think that personally it would be more cost efficient as well as effective to have the car link to the owner or passenger’s phone in order to receive the map data in order to plot a route that would be faster.

* **Identify potential ethical concerns with your solution.**

In my solution so far, I see one of the main problems being the overall adoption of this new type of driving style which would still need a person at the wheel so that while it’s driving it doesn’t potentially turn into a trolley problem where the car’s code has to make the complex choices of either hitting a child or person that ran into the road or to stop and be potentially hit by another car thus hitting the person anyway or being more drastic and potentially hitting people that could be on the sidewalk. I think another potential issue is if the car’s AI would ever it allow it to break some traffic laws in an emergency situation or even in the event of a user or owner of the car would like to speed.

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