Opportunity and Significance

City transit is burdened by both the number and the constancy of citizens. A system that can communicate with and adapt to the citizens can more successfully provide safe and quick transit for both motorists.

Technical Objectives

With the purpose of creating more efficient and effective transit system. Using PIR sensors photoreactive resistors to measure light. For smart lighting, the system measures movement and ambient light to determine appropriate brightness. Smart Parking uses LEDs to determine how many spots are available and communicate that to the public. Smart traffic lights use sensors to determine optimum traffic flow for motorists.

Related Work and State of Practice

In the Netherlands, specifically Twente University, there is an initiative to explore and engineer smarter city facilities.

Technical Approach, Accomplishments and Results

To create a smart streetlight system that more efficiently lit the city, I immediately turned to use an automated system to detect and react to conditions. This results in a streetlamp that turns itself off if left undisturbed, saving electricity.

In smart parking, the use of LEDs and light sensors to detect empty or filled spaces is a harmless system that allows a parking structure to communicate with citizens the availability it has within, saving time and gasoline for motorists.

Smart Traffic lights can use sensors to enhance traffic flow by adjusting the timing of green-yellow-red light cycles so that the most traffic can use each green light, and the least traffic is stopped for each red light.

Next Steps for Development and Test

Our next steps for development would be to test the smart transit systems on a larger scale, which would require greater funding. Additionally, features to cater to pedestrians, especially those with disabilities such as blindness could be developed and included.

Commercialization Plan & Partners

This project was done on a small scale, but working with a larger company would allow us to create a life size model for use in a smart city or complex. While the intent is implementation in smart cities, industrial use can be seen in 24-hour complexes, such as delivery depots for Amazon. However, our project would require more testing across different real-world conditions before it could be implemented in real-scale.

References

- Smart cities: Digital solutions for a more livable future

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