Unmanned Auto-driving Vehicle

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Introduction:

With the growing prominence of auto technology, there is need to improve the reliability of auto system for more demanding applications. Unmanned auto-pilot represents a vital component presented in all auto system. Unlike traditional handed work, this new technology must conform to be safe and smooth for driving.

Team member:

Xiaoran Li (EE)--Hardware: Deciding what kind of required equipments that we can put them into our model car. After that, connecting those equipments into the model car felicitously, such as the position of several sensors and main body camera.

Zhilai Shen (EE) & Ningfeng Zhang (EE)--Software: Consider how to use programming language to control car's performance under different conditions in the real life. After that, fix and dubug any tough problems shown in coding. In the end, improve performance that we want to add.

Yishan Ma (EE)--Structure: decide how to place the Arduino board in the model car and finalize the main body structure of model car by using impervious format that is benficial to the drving.

Goal Statement:

The goal of this project is to detect the distance between one car and surrender car to achieve auto-pilot. For implementation. We desire the car also can achieve to report any unknown damages to other objects such human and moving subject. Since it is auto-pilot want also can achieve auto stop when meeting stop sign and traffic light.

Schedule:

10/04/2016 First group meeting! Team constructed!
10/11/2016 Second group meeting, start discussing what we should focus on
10/20/2016 further discuss on what our project should focus based on instructor's advice
10/25/2016 have a basic idea of constructing a cart with autopilot functions
11/5/2016 Do the poster and specify our plan
11/20/2016 Decide basic equipments for the project and starting purchasing
11/24/2016 Start coding
12/2/2016 Fall Design Review

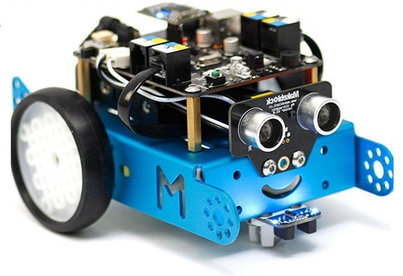
Approach:

Hardware: Programmable car prototype with camera and microcontroller attached.

Software: Using Arduino language to control the car movements.

Communication: Wi-Fi and Bluetooth protocol.

Using camera to capture the image of surrounding traffic condition. Digital Signal Processing is used to process and evaluate the condition of current state and make the correct movement. WIth the movement conjectured by the processing unit, the car reacts accordingly.



Progress & Current Status:

Our fundamental thought have been chosen and fixed to build a cart with ability to adjust the speed according to the surroundings. Based on that, we are now doing brainstorming on further improvement in our project. We also try to do research on choosing equipments.

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