ECE 153B project proposal

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**Project website:** https://sites.google.com/view/ece153b-final-project/home

Project Overview: Our goal for this project is to build a small car based on stm32 board. Our car will have functionalities such as Bluetooth connection, auto obstacle avoidance and auto return-to-home.

Peripherals: Our project will have multiple peripherals. In order to deploy auto obstacle avoidance we may need an inferred red light sensor or an ultrasonic sensor to measure car's distances to surrounding obstacles. And we definitely need one driving motor and one turning motor at least to let the car move. Lastly we may need a camera to coordinate with the avoidance system and return-to-home feature.

Serial interface protocols: I2C, SPI

Block diagram:
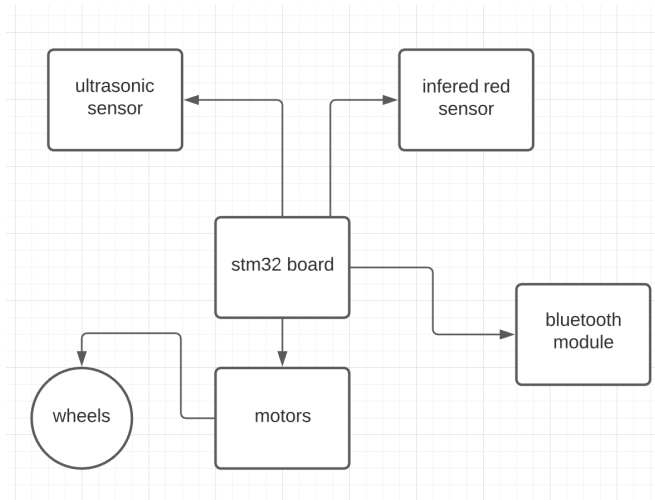
Responsibility: Chen: ultrasonic sensor, inferred red sensor and part of main program

Wang: motors, bluetooth and part of main control program

Software structure: main program controls the movement of the car. One interrupt will be sent from bluetooth module which is basically user input. The other would be sent from obstacle avoidance function which runs at back end. This interrupt is being sent whenever an object is too close and this interrupt will have higher priority.