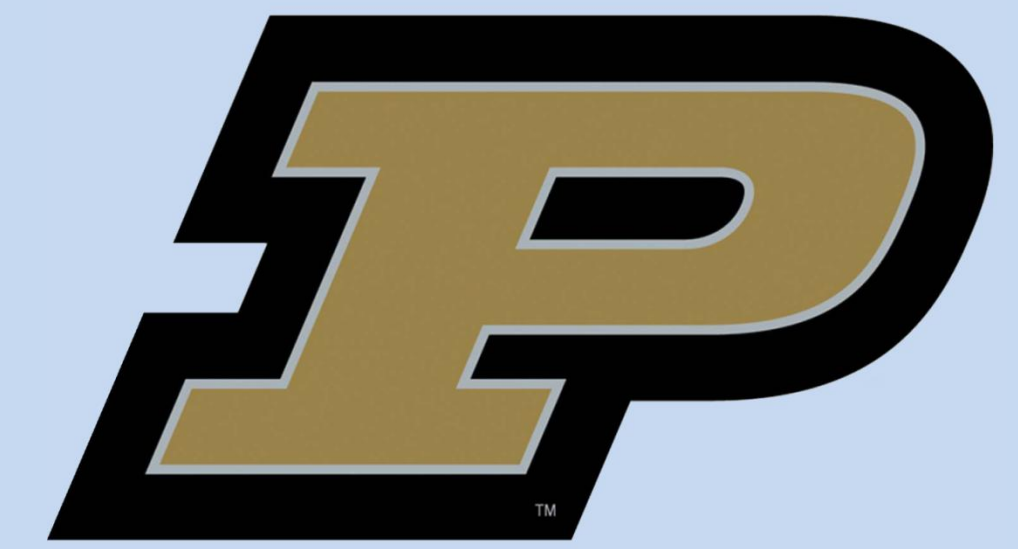


Long Range Vehicle Control



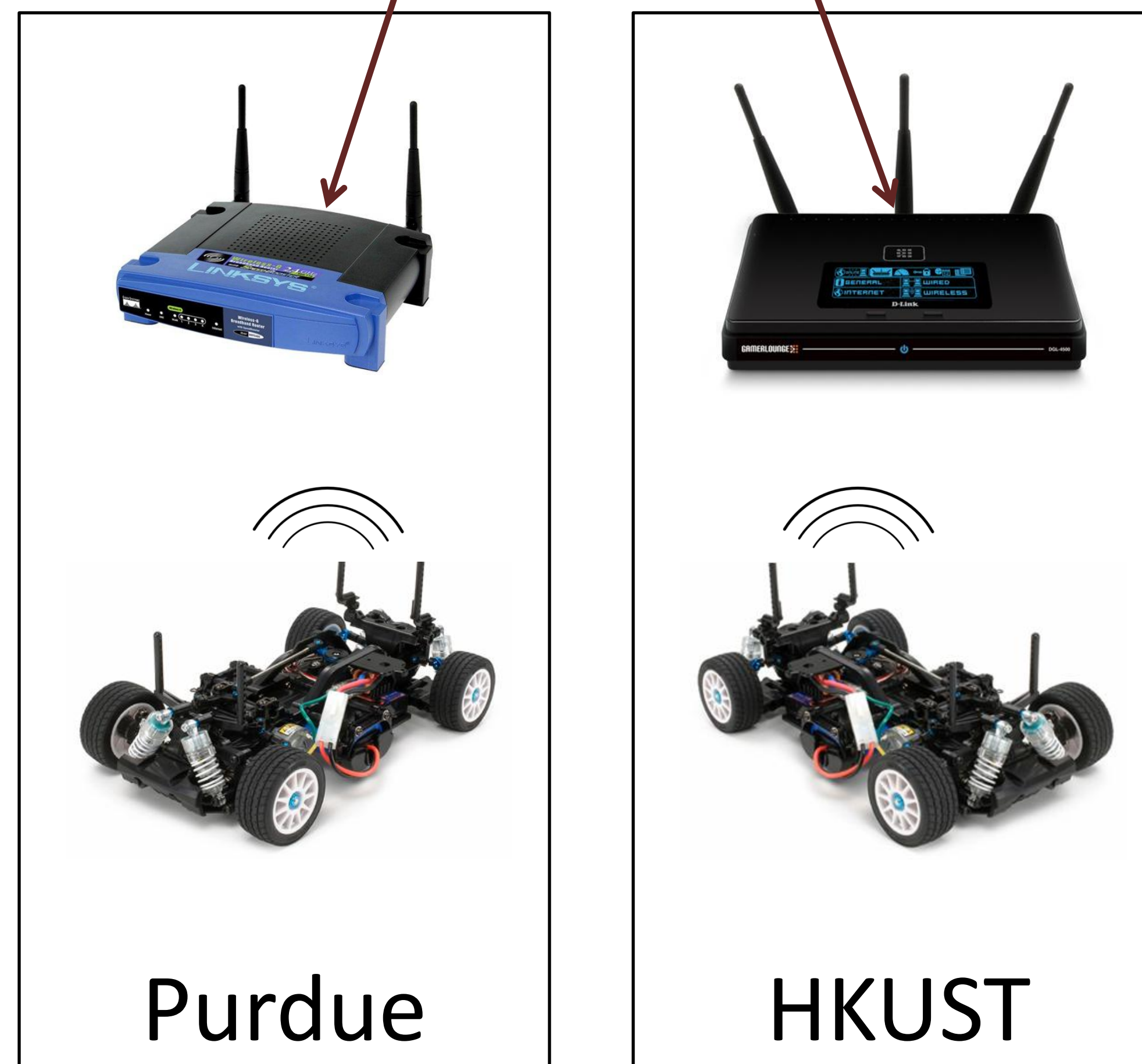
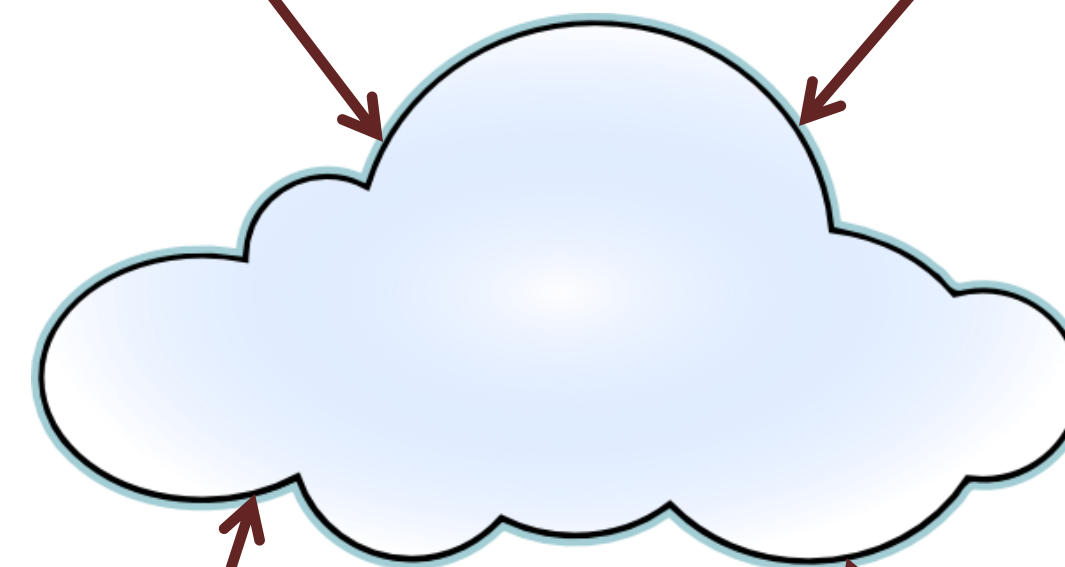
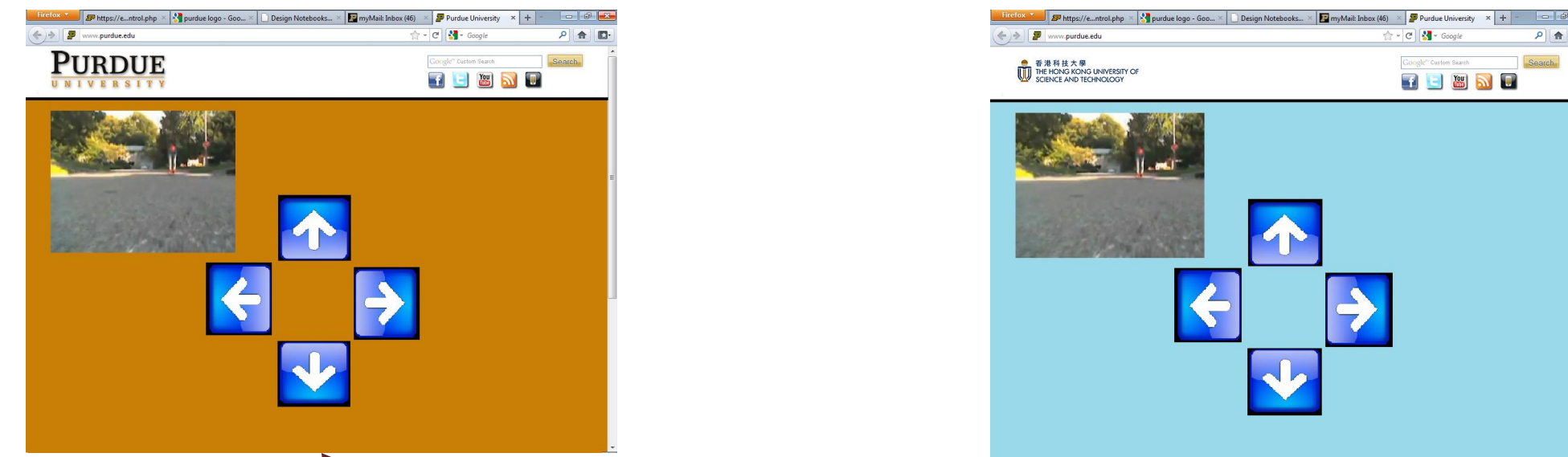
Team Members: Jason Holmes, Matthew Guenette, Michael Piercy, Kin Chin Chua, Scott Stack, Chris Romanoff
Advisors: Mark Johnson, Matthew Swabey, James Krogmeier

Objective

Design a remote control vehicle system through collaboration with a team at the Hong Kong University of Science and Technology (HKUST).

Current Tasks

- Each team is creating an independent version of both the vehicle and the control system that are designed to be compatible with the other team's implementations.
 - Detailed features, functionality, and protocols are being negotiated between the HKUST and PU team.
 - We communicate through email, Rhea, and video conferencing to discuss new ideas and confirm design decisions.
- Four members of our team will continue on to implement this design as a part of our senior design project in the Spring 2012 semester.

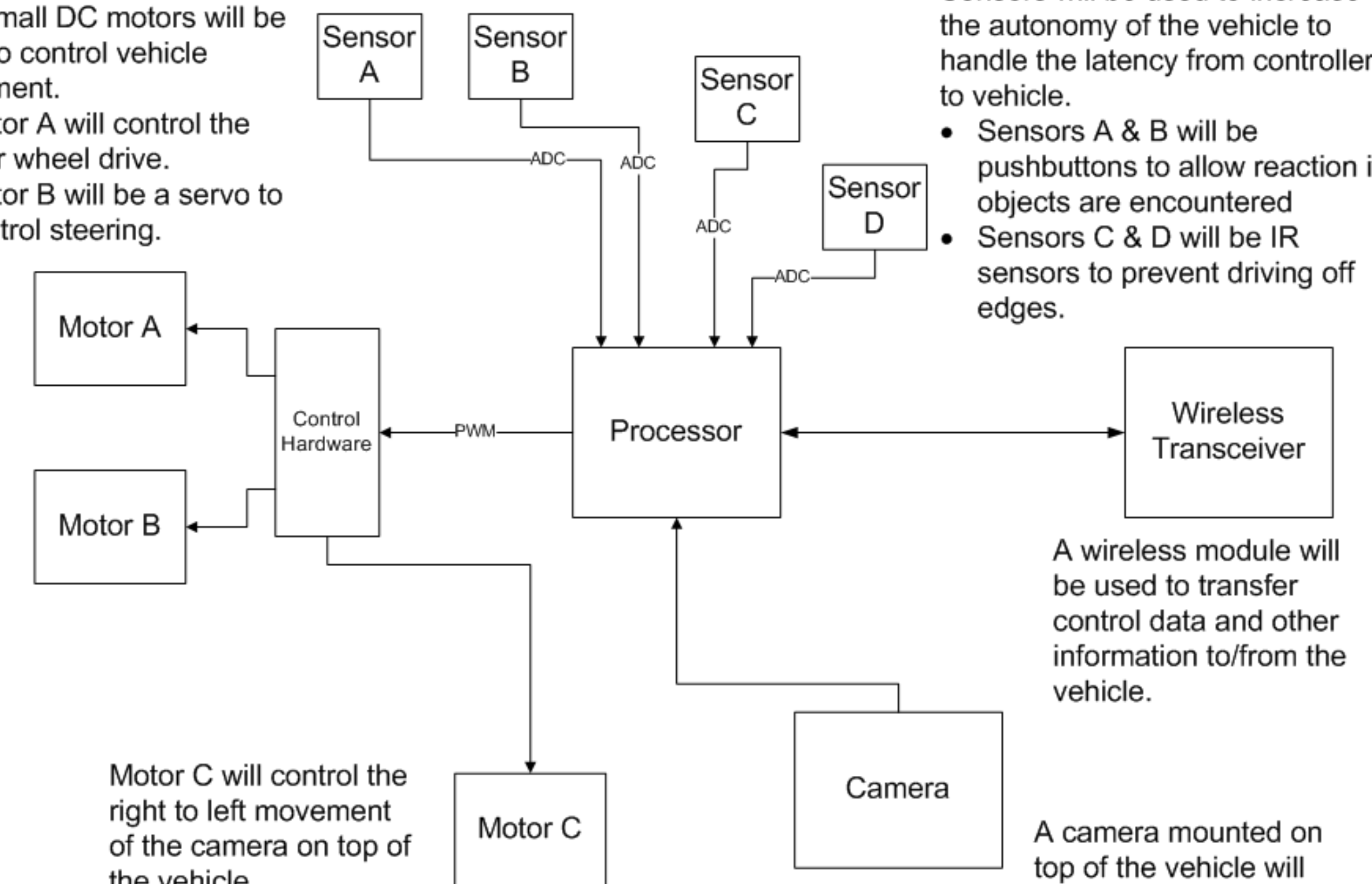


Implementation

The design centers around an ARM processor which will communicate wirelessly to the internet through a wireless transceiver (802.11b/g). Each team will create a website capable of controlling their vehicle and the vehicle of the other team. A camera on each vehicle will feed video to the controlling website during operation.

Two small DC motors will be used to control vehicle movement.

- Motor A will control the rear wheel drive.
- Motor B will be a servo to control steering.



Motor C will control the right to left movement of the camera on top of the vehicle.

Sensors will be used to increase the autonomy of the vehicle to handle the latency from controller to vehicle.

- Sensors A & B will be pushbuttons to allow reaction if objects are encountered
- Sensors C & D will be IR sensors to prevent driving off edges.

A wireless module will be used to transfer control data and other information to/from the vehicle.

A camera mounted on top of the vehicle will provide video feed to the controlling website.