

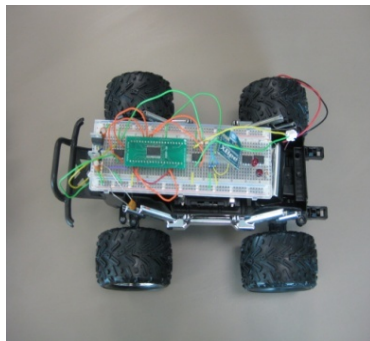
2014 SUMMER STEM PROGRAM

C³ : CAR TO CAR COMMUNICATION



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TEACHING ASSISTANT: KYLE KUFFERMANN
WEEK 3: JUNE 23 -27, 2014

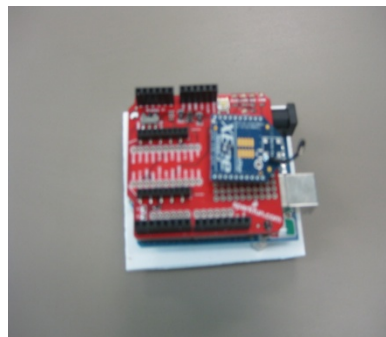
Would you like to build a prototype car that is able to talk to other cars?



If your answer is yes, then we have just the class for you!

C-cubed (C³) introduces wireless sensor networks in a vehicular setting using cutting-edge engineering technologies. You will get to:

- Build a sensor application using a radio chip, microprocessor boards, wires, and a battery operated vehicle
- Use PCs to modify the radio chip
- Define a problem, design and create a plan of action
- Execute the plan, and test your prototype vehicle



Join a team to build your C³ car & see how it performs against other teams' cars!

The following example describes a problem that will be solved using the **C³** application: *Send a wireless message to vehicles ahead of approaching emergency vehicle. Clear the road for this emergency vehicle to proceed without delay.*



This course uses an abundance of manipulatives including video presentations, illustrations, and Power Point presentations. Students will get the opportunity to express their curiosity through discussion groups and hand-outs.

Schedule	Morning Session	Afternoon Session
Monday	-Introduce engineering design concepts such as streamlining, friction for vehicles -Students have fun creating car body designs using materials such as Styrofoam, wood, etc.	-Car design competition - Each student will race their car to see which one travels the farthest
Tuesday	-Present the experiment kit to all student groups -Explain each component and let students examine them -Introduce the concept of vehicular networks	-Students begin to work on putting together the physical components -This activity is interspersed with Power Point sessions and fill-in-the-blanks handouts
Wednesday	-Test the circuits -Discuss components in use -Modify code on the radio chip to allow vehicle movement	- Upload code onto the radio chip -Students will place the chip on their vehicles - Test code
Thursday	-Students learn how to solder components that are part of the circuits they are building	- Students test their circuit implementation -Modifications are made and the vehicle to vehicle communication is tested
Friday	-Final competition to see which team's C³ car achieves the best result -Each student is presented with a CD containing their videotaped presentation and scanned images of their worksheets for this class	Course concludes in the morning session.

This one-week program is designed to promote successful completion of the tasks provided to each student where the students will gain confidence and knowledge that will spark their desire to learn more. **C³** is designed with the intent to create a life-long passion for engineering and help students become the next-generation leaders in the field of computer engineering.

We look forward to seeing you in the C³class!