

Informal Meeting about the IEEE events for next year. July 18 2012

Brandon, Devyn

This meeting was called to discuss potential activities for the coming academic term.

Mechatronics Club:

- Brandon suggested we file a joint SFOC application with Dr. Najjaran who also needs flight permission for his research helicopter. It would be convenient for both parties because we already have the contacts and know the application procedure. He will be around for a long time so we don't have to re-apply again each year when we lose students. He may also know who to ask permission to fly on the UBC grounds.

Need to go to the bank and get a cheque for 1. Dr Holzman to cover the barbeque expenses from last year. 2. Need to write Montana a cheque for the domain renewal (also, maybe a cheque for next year too pre-emptively).

Events for next year should be posted to the website before school starts. Even if the dates are approximate (this month, expect these three events). Also post approximate dates to the calendar which streams onto the learning centre electronic billboard.

- reuse posters from last year in the website links for the events to add some colour and start branding the events.
- Need to popularize the website more
 - brandon suggested linking through to a file server which stores notes and assignments which students want to share with one another.
 - Data-base driven front end for upload and download of files. Search by course number, date and material type. How much granular data to include? Lecture date? Professor? Student?
 - Stickers/tags around to get the word out.
 - Post other groups events on the calendar to improve its usefulness to our followers.

Circuit of the Week (MLRC)

- suggested to work on projects which have future application as part of a robot.
- Either tell the students they are building a robot right from the beginning and then proceed one small circuit at a time, or tell them after they have built several small circuits.
- Introduces the method of working on a problem a chunk at a time.
- Breaks up the time into convenient chunks.
- Could make for complex design up-front from the instructor's point of view, but try this...
 - students decide what kind of robot they want to make, what features it will have, what abilities, and what sub-systems they will need.
 - We provide a list of sub-systems we will offer tutorials on and they can choose which ones they want to attend.
 - Bonus is that even by themselves most of the sub-systems will be useful/interesting circuits on their own. Treat it like lego-mindstorms, except they engineer the robot first from "prospective pieces" then build the pieces slowly over the year.
 - Could construct a technology tree! Like a video game. They must have this skill to get that one, etc.

- Laser range-finder
- ultrasonic range-finder (is acoustic range-finder possible?)
- long-distance mic (amplifier and filter)
- motor controller (h-bridge) (stepper) (servo control)
- line follower (comparator, opamp, barcode reader (software could be tough))
- gripper (mechanical/electrical integration). Uses motor controller.
- Camera? Still camera. Video camera? (not likely)
- 555 PWM
- shift register (7Seg and LED control as demo, use for air valves/liquid valves etc)
- radio controller (oscillator, amplifier, transmitter, receiver, uses PWM will AM work? FM (hartley oscillator)? IR?)
- microcontroller (analog inputs, software, digital and analog outputs) brain of both remote and robot.
- IR communication (microcontroller driven, small circuit, mostly software)
 - TV – B Gone
 - data transfer between two points
 - IR control of remote actuator (servo, motor, lights etc.)
- Power supplies
 - voltage regulated
 - transformed & rectified & filtered AC (safety concern)
- resistor ladder network ADC and DAC's what could we use them for?
- Use one of the remote channels and an I-phone app to remotely operate something (bluetooth, wifi, IR, radio?)

Lots of ideas, but we need to build them, debug them, specify parts and write short instructions.