Project Intro Checklist - ENPH 459/479, Engineering Physics Project Lab

Please complete this checklist, as it will be used to ensure that your group and your Project Sponsor are clear about expectations for the course.

Use the space provided to provide sufficient info to justify a Yes or No response.

NB: This is a sample project intro questionnaire with 80% of the material taken from a previous 459/479 project group.   This was a self-sponsored project,which also reflected a slightly higher level of description in terms of describing the initial components for the system, but the other sections are a fair representation of the level of detail expected for the writeups.

Project Number, Title: CamNET Group Members: EngphysStuden1, EngphysStudent2, EngphysStudent3
Brief Project Summary (4 or fewer sentences): Networks of visual sensors are the solution of choice for a number of society, research, and education applications. The project scope is to develop and build a wireless camera network with the promise of flexibility, quick deployment, and the ability to provide accurate visual data for extended periods of time. The wireless sensor nodes will consist of an RF module for communication, a micro-controller, and a two-buffer power storage system.
Q1 - Does your project have quantifiable goals? Yes__X___   No_____ Please specify: The project will have a mix of quantifialbe and somewhat subjective goals: • A network consists of a host and three wireless camera nodes. The network design should be scalable to up to 50 nodes with node placement no more than 4 km apart. • The network should capture image at an adjustable frequency between 15 min and over an hour. • The host should automatically manage the network and organize captured image. • Each camera node consists of a power management circuit that maximizes power input from solar panels and maintains a proper charging cycle. • The node enclosure should ensure electronic reliability in various weather conditions including condensation and light rain. • An intuitive method of alignment of a camera node to a particular target.

Q2 – Does your project require you to develop original content?

Yes__X___   No_____
Please specify:
Although the modules exist for all of these items, there has been no evidence found of a system which encompasses all of these items, which we hope to use as part of our design:

#	Item	Supplier	Qty.	Unit Cost (CAD)
1	Arduino Pro Mini	Arduino.cc	3	20
2	FTDI USB Adapter	Sparkfun	1	15
3	C328-6016IR CCD Camera	Electroniscs123.com	3	45
4	Solar panels	Sparkfun	3	45
5	XBee Pro 900 Digimesh RF Module	Sparkfun	4	45
6	XBee USB breakout board	Sparkfun	2	25
7	Supercapacitor	Digi-Key	3	20
8	Li-ion battery	Digi-Key	3	10
9	Enclosure box	Digi-Key	3	20
10	Misc. elec components	Digi-Key	N/A	100
			Total	825

Q3 – Is your project feasible in the amount of time (80-120 hours, or 1day/week for 1 term?)

Yes____   No__X___
Please specify:

A good chance that there is too much development for the project at this point.   We will likely have to reduce/eliminate the power management portion of the system in order to focus on the core networking of the camera and initial mechanical housings for the project course. This will be clarified as we identify sufficient schematics and information for all components in the system.

Q4:   Are there any risks or issues that make you unsure whether this is a suitable project?

Yes_____   No__X___
Please specify:

The expected risks anticipated are as follows:
1. Solar panel power insufficiency
2. Camera node power consumption too high
3. Weak signals and data Rates
4. Poor serial connection with camera
Other than poor serial communication, the functionality of the system should not be affected.

Other Comments: