



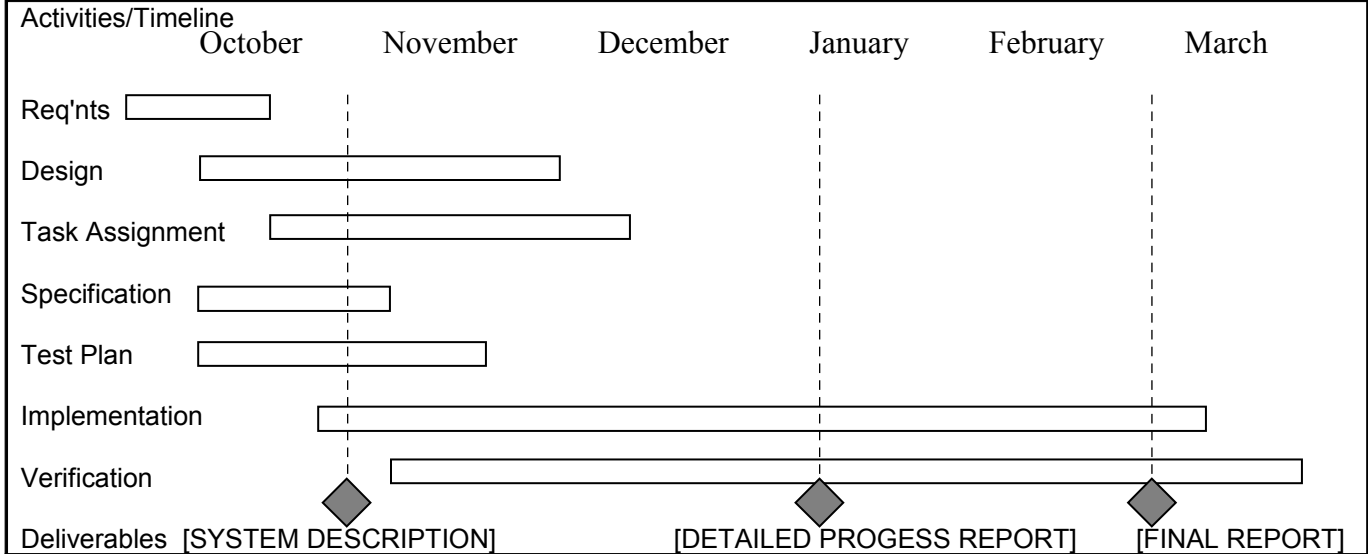
<b>Project Cover Sheet</b>	Date:	Evaluation criteria: 1. Innovation (15) 2. Final Design Report (25) 3. Completeness (10) 4. Practicality (25) 5. Complexity (10) 6. Design working in H/W (10) 7. All-undergrad team (5)
	Academic/Industry Mentor	
Team name/mission statement	Name: E-mail: Tel.:	

Team Member	e-mail	Telephone

Problem statement: What problem it solves? Or, what feature does it improve?

Measure of success: How will you know you have achieved your goal?

Proposal (100-200 words): How will your device solve the problem described, or improve the feature selected?



## **Project Planning Suggestions**

### Putting together a team

Most teams probably start with a few students that share friendship or a common interest in participating. The advice given by Kathleen Melymuka, writing in Computer World, will probably help you put together a team. We have edited her list as follows:

- Fewer Is Better - Small project teams perform better due to a lower communication overhead (Brooks' law)
- Attitude Counts - Look for people with positive attitudes
- Diversity Lowers Risk - Extend beyond your group of friends: counterbalance
- Familiarity Breeds Action, and Clarity Mitigates Conflict - Set clear ground rules at the very start of your project. Set clear achievable, unambiguous and mutually attainable team goals and individual goals
- Availability Trumps Everything – Hold individuals to be accountable to the team and committed to the project.

### Selecting a goal to achieve

Starting with a clear objective will be key, your team may select a challenge based on affinity, or knowledge in an area that can be used on WE CARE Solar's system; regardless of the reason, it is of first importance to get team to commit to a problem to solve before planning can really start.

### Selecting a development process

One of the initial meetings the team should have is a planning meeting to help all team members become familiar with the competition: objectives, requirements, timeline, deliverables and evaluation criteria. The purpose of this meeting is to agree on a formal or informal development process that will be followed throughout the solution development; this process should clearly define, for example: who will keep the project documents up-to-date, how often updates shall be reported back to the team, what means will be used to communicate (Google docs, email, etc).

### Brainstorming

Another key initial meeting that the team should have is a brainstorming meeting, it may be combined with the planning. The purpose of this meeting is the generation of as many solutions as possible, the creation of a reservoir of ideas to draw from as the projects forms. There are four basic rules in brainstorming: focus on generating the most numbers of ideas; withhold criticism until a later 'critique stage'; welcome unusual ideas; combine and improve ideas. A brainstorming session could be structured as follows:

1. Provide context information to participants.
2. The facilitator may use lead questions to stimulate creativity
3. The facilitator ensures that ground rules are followed:
  - a) May run a warm-up session, for novice participants.
  - b) Presents the problem and gives a further explanation if needed.
  - c) Asks the brainstorming group for ideas.
  - d) If no ideas are forthcoming, uses a lead question to encourage creativity.
  - e) All participants present their ideas, and the idea collector records them.
  - f) To ensure clarity, participants may elaborate on their ideas.



- g) When time is up, organizes the ideas and encourages discussion.
  - h) Ideas are categorized.
  - i) The whole list is reviewed/critiqued to ensure understanding by all.
  - j) Duplicate ideas and obviously infeasible solutions are removed.
4. Usually, in its final stage, the team will select one idea.

#### Task definition, scheduling and work distribution

Finally, once an idea is selected, it is key to identify the steps (tasks) needed to accomplish it; these must then be assigned to team members within the framework of a schedule. We will describe the Gantt chart technique to manage a project: the technique used is not important, but adopting a proven project management technique will significantly increase the chances of success. Tasks are significant activities the group will need to perform to accomplish its goals. They are given:

- a name/description
- an estimate of the amount of calendar time required
- a list of other tasks (if any) that must be completed before this task can begin

In a Gantt chart, the horizontal axis is (linear) time; each task is given its own horizontal band where the calendar duration of the task is indicated by a box, line, or other object with a variable horizontal dimension. Tasks are often grouped into categories, and each category can be treated as a summary task whose duration spans all the tasks within that category. Tasks are generally listed from top to bottom in the order they will occur; if there are groups of tasks, the tasks are chronological (by starting date) within a group, and the groups ordered by starting date. A vertical line is usually placed on the chart to show the current date. Other important milestones can be noted (and labeled) with dotted vertical lines at the appropriate dates. What follows is one way of creating a Gantt chart.

1. List all known milestones, deadlines, and deliverables (papers, presentations, etc.)
2. List all outside constraints on time (holidays, exams, etc.), money, equipment, etc.
3. Create a list of tasks (brainstorm).
4. For each task in the list: time (in person-hours, then estimate calendar); dependencies (other tasks); resources (money, parts, equipment); who will be doing it
5. Organize the task groups, and tasks within groups, by starting date
6. Use Excel or other tool to create the Gantt chart  
(<http://www.vertex42.com/ExcelTemplates/excel-gantt-chart.html>)

Finally, we are providing the above Project Cover Sheet as a template that teams shall use when submitting their proposals. It includes a simple Gantt chart with tasks relating to the evaluation criteria of this competition. We hope our simple project planning suggestions will allow you creativity and talent come through in helping us find solutions to our three challenges. Welcome aboard.

#### **Student Project Planning Suggestions References**

- [http://en.wikipedia.org/wiki/Brooks\\_law](http://en.wikipedia.org/wiki/Brooks_law)
- [How to Pick a Project Team](#)
- <http://en.wikipedia.org/wiki/Brainstorming>
- [An overview of Gantt, PERT, and CPM charts](#)