Conceptual Mechanical and Electronical Design of an unmanned Solar-Powered Robot

Thesis outline

Present-day robots all suffer from 1 major drawback: they rely on a limited energy source which limits their range. Therefore, it is the idea with this thesis to conceptually design a solar powered robot. The design should take into account the following constraints:

- It must be completely self-sustainable from an energy point of view (during day-time)
- Hence, it must be lightweight
- It must be able to carry a small embedded PC and supply current to this PC
- It must be able to carry a camera and supply current to this camera

Aerodynamics is (probably) not an issue, as we're not going for speed records, the robot should just be able to move at walking speed.
The student will need to take into account the electrical power supplied by commercial solar panels, and make a design for a robot with such that the robot consumes not more energy than produced by the solar panel.

Student Tasks

The is requested to output the following:

- A CAD model of the robot
- A list of all mechanical parts which need to be bought, including where they can be bought
- A design of the electronics parts of the robot
- A list of all electronics parts which need to be bought, including where they can be bought

Some Hints

- http://www.google.com
- http://www.solarbotics.com/
- http://www.instructables.com/id/Cheap-Easy-Solar-Powered-Robot/

Student Profile

- For the mechanical part: CAD/CAM experience
- For the electronics part: circuit design and drawing experience
- Sound interest in robotics