Submission Date	2/5/2018
Project Name	Solar Capstone
Student Names	Raphael Najera, Johnson Liang, and Adrian Caprini
Project repository	https://github.com/RaphaelNajera/Sunlight_Sensor
SensorsEffectors choices	Solar Panels, PV3
The database will store	the data retrieved from the four solar panels PV1, PV2, PV3, and PV4.
The mobile device functionality will include	information retrieved from the database from the four solar panels. This will give the audience a visual aspect of how much solar energy has been collected and depleted.
I will be collaborating with the following company/department	Kerry Johnston, Humber College Institute of Technology & Advanced Learning North Campus, Prototype Lab, and Humber College Sustainable Energy and Building Technology
My group in the winter semester will include	Raphael Najera, Johnson Liang, and Adrian Caprini
50 word problem statement	Solar power is clean renewable energy collected from the sun. As a result, by using solar energy it helps reduce greenhouse gas emissions and relying on fossil fuels. Fossil fuels is a heavily relied on source to produce energy however, it will deplete one day. Thus, solar energy should be invested into which has an unlimited supply.
100 words of background	The sun produces renewable energy where it is clean and does not generate harmful environmental emissions. If the properties are harnessed then that source of energy can be manipulated to produce electricity, heat, and other valuable energy properties. A solar panel is made of many cells which consist of a positive and negative layer. When the photons collide with the semiconductors on the panel it creates an electric field which are harnessed by the positive and negative layers. The produced energy is multiplied by the number of cells within a panel and the number of panels in a solar array.
Current product APA citation	Hudson, G., Noble, G., Lea, T., & Galloway, M. (n.d.). Solar PV. Retrieved February 04, 2018, from https://guide.openenergymonitor.org/applications/solar-pv/ Energy, O. (n.d.). The ultimate beginner's guide to solar panels. Retrieved February 04, 2018, from https://www.ovoenergy.com/blog/green/the-ultimate-beginner-s-guide-to-solar-panels.html AlsoEnergy. (n.d.). Retrieved February 4, 2018, from http://www.alsoenergy.com/PowerTrack/PowerLobby.aspx?sid=33838

Existing research IEEE paper APA citation	Jain, C., & Singh, B. (2016, December 28). Solar Energy Used for Grid Connection: A Detailed Assessment Including Frequency Response and Algorithm Comparisons for an Energy Conversion System. Retrieved February 04, 2018, from http://ieeexplore.ieee.org/document/7801016/ Liu, S. M. (2009, December 1). Design and Implementation of RGB LED Drivers for LCD Backlight Modules. Retrieved February 01, 2018, from http://ieeexplore.ieee.org/document/5166500/citations
Brief description of planned purchases	No other purchases are required for this project as we will be using solar panels located on the roof on the L-wing. 16X2LCD: Maybe used to display collected solar data stored in the database. Otherwise data will be displayed in a mobile application.
Solution description	This concept could be used for homes and businesses that have installed solar panels on their roofs. This would show the data from the solar panels from the sunlight when they are running. With the information it retrieved the data will be stored in the database. The user will be able to retrieved the information by using the app on their smart phone. As a result, users will be able to keep track the amount of energy the solar panels have collected, CO2 avoided, and energy depleted.