**Read\_Data**

* Purpose: Reading in energy data, harvested preditec or surveyed, in order to give a graphical view of the data. Statistical analysis of data is conducted and also displayed.
* Implementations
  + Running averager: N-points based on the number of points in the given data set
  + Statistical analysis is done through MatLab base functions
  + XLS file creation for all values calculated
* Each section is headed with the technique task implemented below
* Function arguments
  + file\_name - Function reads text files organized into columns (see Appendix for example) Must be entered
  + line skip - skip any lines that are non-numerical, such as column headers
  + damp - Percentage of points by the data length you would like to average by
    - if not entered defaults to zero
  + Period - can have a period of 1,5,10,30,h(hour)
    - These number corresponds to skips when parsing through the data
    - if not entered does not skip anything
* Function asks for certain values as algorithm is run but is are not necessary
  + Hitting enter will default these values to :
    - Values for the harvesting technique chosen
      * Area of the Solar Cell? (cm^2) = 1040
      * Efficiency of the Solar Cell? (Decimal Form) = .07 (7%)
    - These are the right hand side (maximums) in which the power odes are detected
      * Max Power to Sustain Sleep Power (mW): = 5% or the maximum power detected in the data set
      * Max Power to Sustain Low Power (mW): = 25% or the maximum power detected in the data set
      * Max Power to Sustain High Power (mW): = 75% or the maximum power detected in the data set

**harvested**

* Used to convert the surveyed data into proposed power harvested.
  + To be extend to wind, piezoelectric materials, and human kinetic generation of power (motion)