Geoff Walker

From:	Sophie Burgess <sophie.burgess@connect.qut.edu.au>
Sent:	Wednesday, 12 June 2019 1:32 PM
To:	Geoff Walker
Subject:	Models and Spreadsheet Data Finalised
Attachments:	samesizestrings_shuffconv.slx; Single_String_no_optimisation.slx; Single_String_with_shufflingconverters.slx; VIdata.xlsx; Irradiance.m; PV_Model_3rdstring_shuffle_mppt.slx; PV_Model_4thstring_shuffle_mppt.slx; PV_Model_5thstring_shuffle_mppt.slx; PV_Model_6thstring_shuffle_mppt.slx; PV_Model_1ststring_shuffle_mppt.slx; PV_Model_2ndstring_shuffle_mppt.slx

Hi Geoff,

Here are all the models and spreadsheets - hopefully, I have explained it well enough!
Models have annotations within them to help explain, and then the PV Model for the 1st string includes a full breakdown of the model (will note below which model that is)

Just with uploading the spreadsheet of irradiance data, I've written a little blurb at the top of the irradiance.m file which explains how to import it. Whoever uses this information just needs to confirm they use the right tab in the spreadsheet as I have all the current and voltage data in there too.

I've included -
single_string_no_optimisation
This is the first string in the top left-hand corner of the car which includes different sized strings. This model shows the output of each with no shuffling converters or any kind of optimisation

single_string_with_shufflingconverters
Is the model described above just including shuffling converters as well (this one is without changing the duty cycles of the converters)

samesizestrings_shuffconv
This model has 5 modules with 10 cells in each module and shows the outcome of using shuffling converters on same sized strings. right click and comment out the shuffling converter components to see the difference between using the converters and not using them when there are different irradiances

PV_Model_1ststring_shuffle_mppt
this is the completed model for the first string including shuffling converters and elmar MPPT. This is the model that has a full breakdown of each section

There are also models with the same title but ranging from 1st-6th string and just covers all 6 strings on the solar collector, being complete with elmar mppt and shuffling converters. These models do not have the same level of detail and the 1st string model because they are very similar, only differences with the string sizes and shuffling converter duty cycles.

I also used premade MPPT algorithms I downloaded off Mathworks which are available through the following website https://au.mathworks.com/campaigns/offers/mppt-algorithm-models.html

just need to log in to gain access and can then download them. I wasn't able to get these working in the end but will be very useful for someone to look into.

I believe this would be everything to pass onto the next person, if there's anything you can think of that I'm missing, let me know and I'll send it through.

Thank you again for all your help the past year!!

Thanks,
Sophie