

Project Report

IFT 458 - PD 5

Spring 2018

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[illegible]

Figure 5.3 shows the edits made in solarProject/setting.py file by adding the new app “solarpv”.

Figure 5.3: solarProject/setting.py

```
"""
Django settings for solarProject project.

Generated by 'django-admin startproject' using Django 2.0.3.

For more information on this file, see
https://docs.djangoproject.com/en/2.0/topics/settings/

For the full list of settings and their values, see
https://docs.djangoproject.com/en/2.0/ref/settings/
"""

import os

# Build paths inside the project like this: os.path.join(BASE_DIR, ...)
BASE_DIR = os.path.dirname(os.path.dirname(os.path.abspath(__file__)))

# Quick-start development settings - unsuitable for production
# See https://docs.djangoproject.com/en/2.0/howto/deployment/checklist/

# SECURITY WARNING: keep the secret key used in production secret!
SECRET_KEY = 'k5-q=7n6i0v##(ta+&asif@q#l@&mcxcr)tz5m=_(dmv_2b8^&'

# SECURITY WARNING: don't run with debug turned on in production!
DEBUG = True

ALLOWED_HOSTS = []

# Application definition

INSTALLED_APPS = [
    'solarpv',
    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
]
```

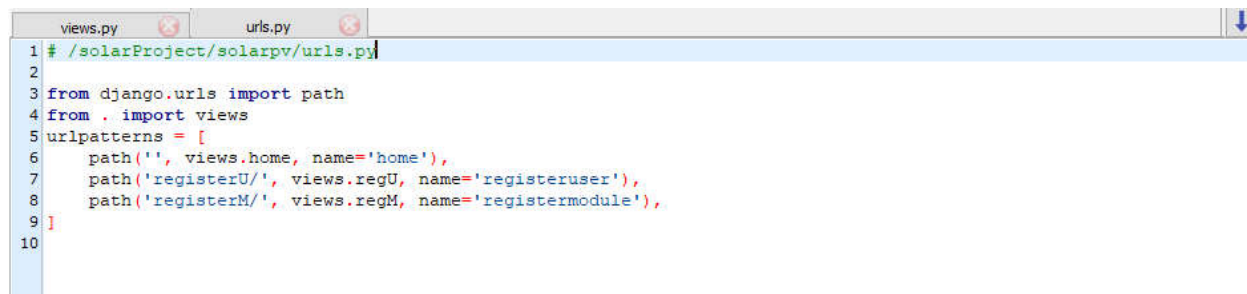
Now that django can read the new application, we go into solarpv app and add lines into solarpv/views.py. Figure 5.4 demonstrates the new edits.

Figure 5.4: solarpv/views.py

```
views.py
1 from django.shortcuts import render
2
3 # Create your views here.
4
5 def home(request):
6     return render(request, 'solarpv/solarPV_Home.html')
7
8 def regU(request):
9     return render(request, 'solarpv/solarPV_Register.html')
10
11 def regM(request):
12     return render(request, 'solarpv/solarPV_RegisterModule.html')
```

The next step, demonstrated in Figure 5.5, is to copy the `urls.py` from `solarProject/urls.py` into `solarpv/urls.py` and edit the file.

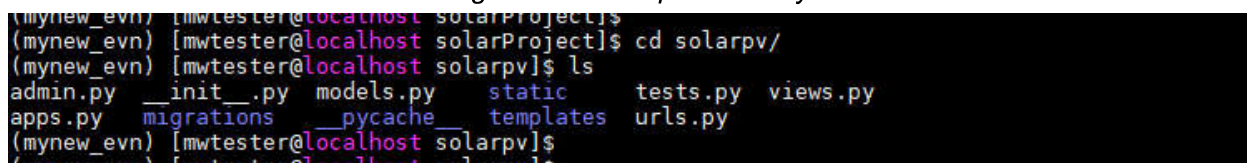
Figure 5.5: `solarpv/urls.py`



```
1 # /solarProject/solarpv/urls.py
2
3 from django.urls import path
4 from . import views
5 urlpatterns = [
6     path('', views.home, name='home'),
7     path('registerU/', views.regU, name='registeruser'),
8     path('registerM/', views.regM, name='registermodule'),
9 ]
10
```

We will use the `solarpv` directory to store our html files in a directory named `solarpv/templates/solarpv` while css, and images will be stored in the `solarpv/static/solarpv` directory. The contents are shown in Figure 5.6

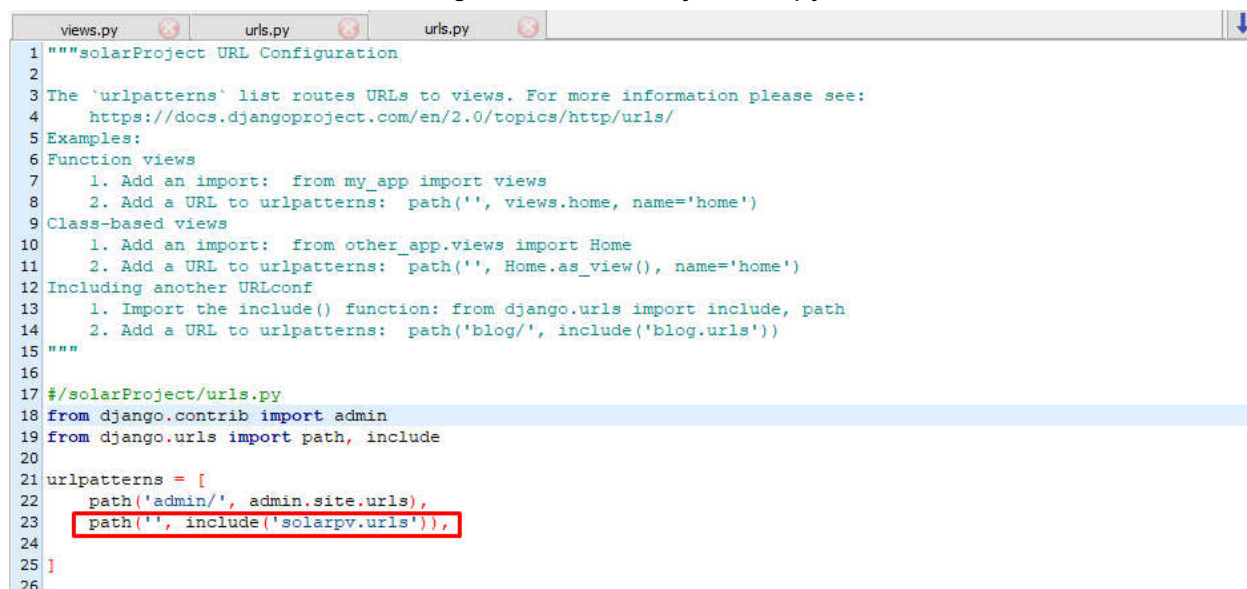
Figure 5.6: `solarpv` directory



```
(mynew_env) [mwtester@localhost solarProject]$ cd solarpv/
(mynew_env) [mwtester@localhost solarpv]$ ls
admin.py  __init__.py  models.py  static      tests.py  views.py
apps.py  migrations  pycache   templates  urls.py
(mynew_env) [mwtester@localhost solarpv]$
```

After this is finished we can adjust the `solarProject/urls.py` file to read the `solarpv/urls.py` file shown in Figure 5.7.

Figure 5.7: `solarProject/urls.py`



```
1 """solarProject URL Configuration
2
3 The 'urlpatterns' list routes URLs to views. For more information please see:
4     https://docs.djangoproject.com/en/2.0/topics/http/urls/
5 Examples:
6 Function views
7     1. Add an import: from my_app import views
8     2. Add a URL to urlpatterns: path('', views.home, name='home')
9 Class-based views
10    1. Add an import: from other_app.views import Home
11    2. Add a URL to urlpatterns: path('', Home.as_view(), name='home')
12 Including another URLconf
13    1. Import the include() function: from django.urls import include, path
14    2. Add a URL to urlpatterns: path('blog/', include('blog.urls'))
15 """
16
17 #/solarProject/urls.py
18 from django.contrib import admin
19 from django.urls import path, include
20
21 urlpatterns = [
22     path('admin/', admin.site.urls),
23     path('', include('solarpv.urls')),
24 ]
25
26
```

With this finished, we can test our part one of the project. The output of the html code is shown in Figure 5.8.

Figure 5.8: Solar PV Webpage

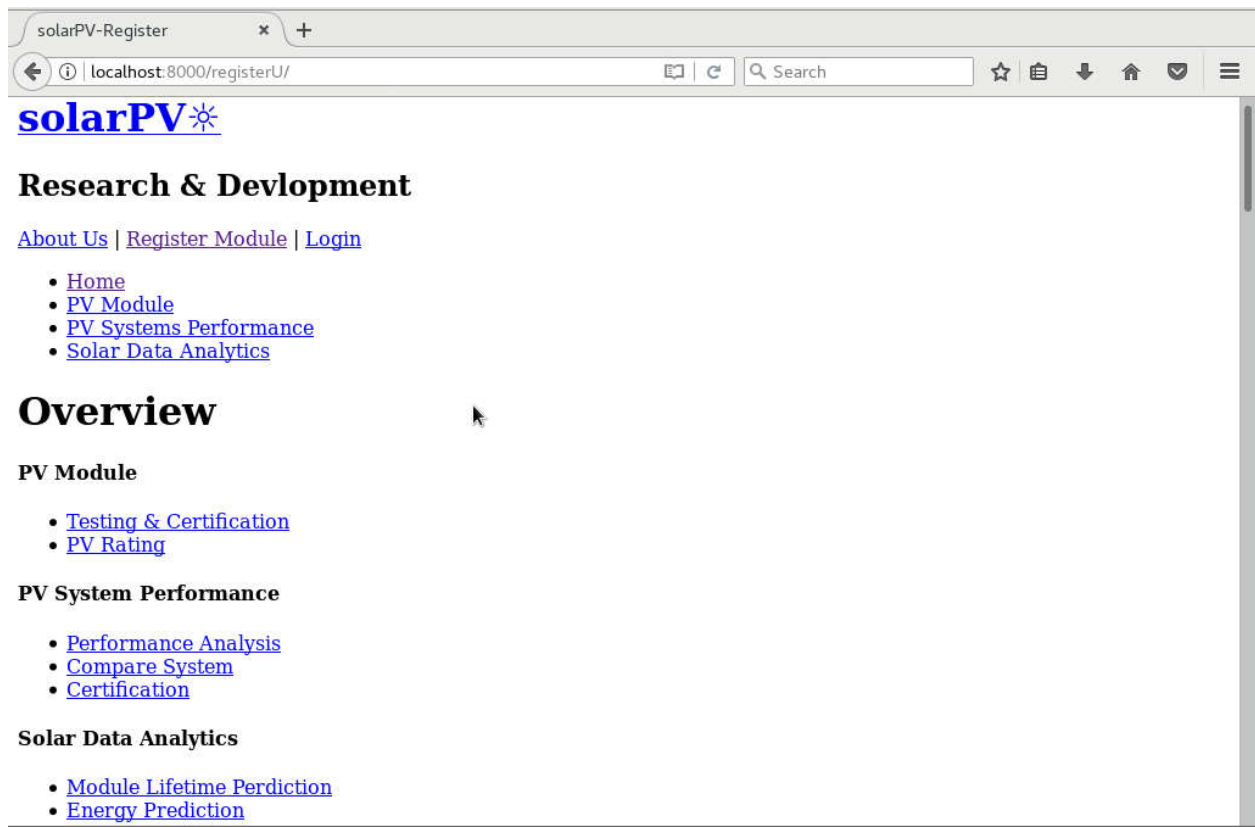


Figure 5.8 was before editing the html files to load our css and link to other pages. Thus, we linked the css code shown in Figure 5.9

Figure 5.9: Loading static



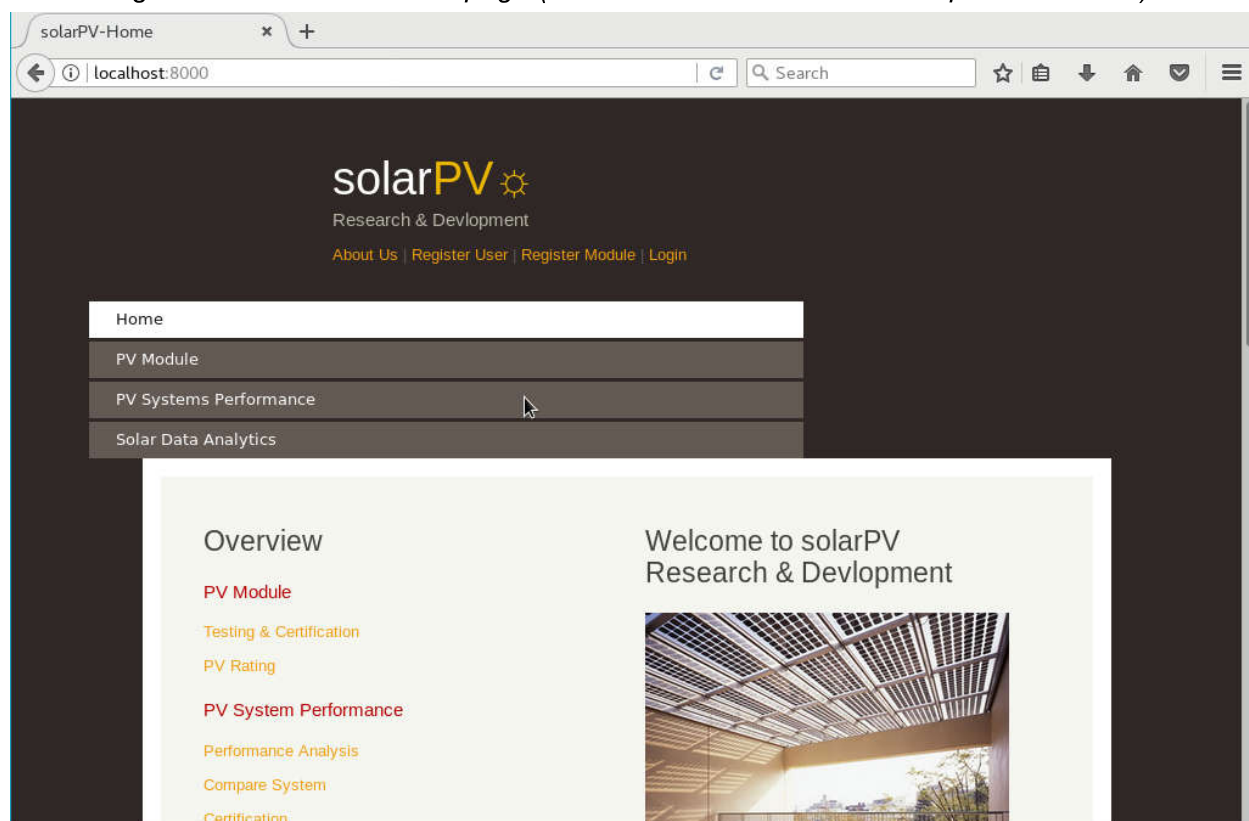
We adjusted all of our html files to load our static folder items such as css and our images. After everything was edited and tested we can now run our server with the css and images with the command `python manage.py runserver`, shown in Figure 5.10. Figure 5.11 is the output of the webpage once css is applied.

Figure 5.10: Running the server

```
(mynew_env) [mwtester@localhost solarProject]$ python manage.py runserver
Performing system checks...

System check identified no issues (0 silenced).
March 29, 2018 - 06:10:02
Django version 2.0.3, using settings 'solarProject.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
[29/Mar/2018 06:10:08] "GET / HTTP/1.1" 200 5401
[29/Mar/2018 06:10:08] "GET /static/solarpv/java/solarPV_Location.js HTTP/1.1" 304 0
[29/Mar/2018 06:10:08] "GET /static/solarpv/css/solarPV_Index.css HTTP/1.1" 304 0
[29/Mar/2018 06:10:08] "GET /static/solarpv/images/home_gallery.jpg HTTP/1.1" 304 0
```

Figure 5.11: SolarPV Homepage (Screenshot taken in device responsive mode.)



User Manual

To execute these scripts, ensure that the .zip file provided is downloaded and all files are kept in the same format. Put these scripts under the virtual environment directory (into the folder). Ensure these scripts are present by executing the command `virtualenv ls` shown in Figure 5.12. Next, run the server with the command `python manage.py runserver` shown in Figure 5.13. Now, through the web browser you can access the content with the urls given. For example, in Figure 5.13, the url is <http://127.0.0.1:8000/>. Access is now visible and running and should be displayed as shown in Figure 5.14, Figure 5.15 and Figure 5.16 and Figure 5.17.

Figure 5.12: Virtual Environment folder

```
[mwtester@ec2-10 djangoBox]$ cd mynew_env/
[mwtester@ec2-10 mynew_env]$
[mwtester@ec2-10 mynew_env]$
[mwtester@ec2-10 mynew_env]$
[mwtester@ec2-10 mynew_env]$
[mwtester@ec2-10 mynew_env]$
[mwtester@ec2-10 mynew_env]$ ls
bin demo include lib lib64 pip-selfcheck.json pyenv.cfg solarProject suorganizer
[mwtester@ec2-10 mynew_env]$ source bin/activate
(mynew_env) [mwtester@ec2-10 mynew_env]$
```

Figure 5.13: Run server

```
(mynew_env) [mwtester@ec2-10 mynew_env]$ cd solarProject/
(mynew_env) [mwtester@ec2-10 solarProject]$ ls
db.sqlite3 manage.py solarProject solarpv
(mynew_env) [mwtester@ec2-10 solarProject]$ python manage.py runserver
Performing system checks...

System check identified no issues (0 silenced).
March 30, 2018 - 16:26:40
Django version 2.0.3, using settings 'solarProject.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
```


Figure 5.14: Solar PV - Home

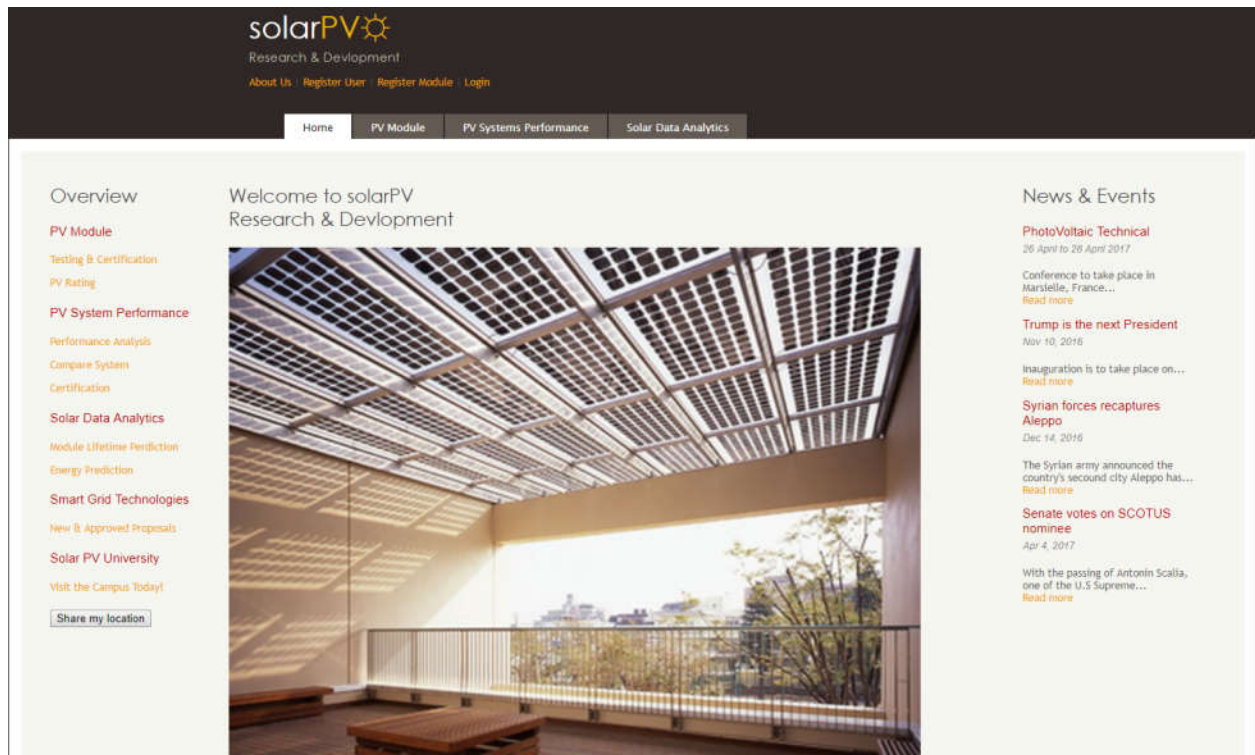


Figure 5.15: Solar PV - Register

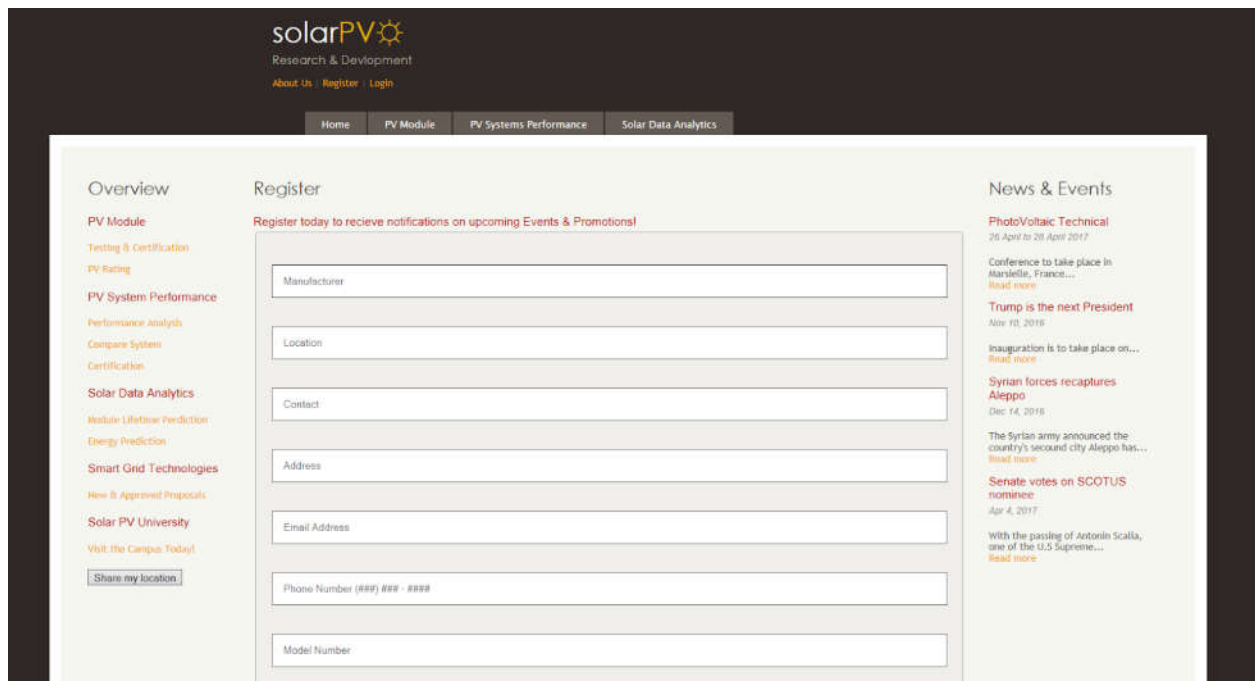


Figure 5.15: Solar PV - Register Cont'd

Module Length x Width (cm x cm)
Weight
Individual cell Area (cm ²)
Cell technology (mono-Si, poly-Si, a-Si, CIS, CdTe, etc.)
Cell manufacturing location
Total number of cells
Number of cells in series
Number of series strings
Number of bypass diodes
Bypass diode rating (A)
Bypass diode max junction temperature (A°C)
Series fuse rating (A)

Figure 5.15: Solar PV - Register Cont'd

Interconnect material and supplier model no.
Interconnect dimensions (mm x mm)
Superstrate type
Superstrate manufacturer and part #
Substrate type
Substrate manufacturer and part #
Frame type/material
Frame adhesive
Encapsulant type
Encapsulant manufacturer and part #
Junction box type
Junction box manufacturer and part #

Figure 5.15: Solar PV - Register Cont'd

Junction box potting material, if any
Junction box adhesive
Is junction box intended for use with Conduit?
Cable & Connector type
Maximum system voltage (V)
Voc (V)
Isc (A)
Vmp (V)
Imp (A)
Pmp (W)
FF (%)

Figure 5.15: Solar PV - Register Cont'd


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Figure 5.16: Solar PV - Module Testing



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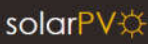
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Figure 5.17: PV Rating - Test Results



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Test Results

Displayed below are the current test results

Model	Test Sequence	Condition	Date	ISC	VOC	IMP	VMP	FF	PMP
KUT0012	Baseline	STC	3/11/2008	5.2	44.7	4.88	35.7	75	174.3
KUT0003	Baseline	STC	3/11/2008	5.34	44.7	5.03	35.7	75.2	179.7
KUT0003	TC200	STC	5/7/2008	5.2	45.1	4.83	36.4	75.2	176.2
KUT0004	Baseline	STC	3/11/2008	5.21	44.8	4.91	36.1	76	177.2
KUT0012	Baseline	STC	3/11/2008	5.2	44.7	4.88	35.7	75	174.3
KUT0004	Baseline	TC200	3/11/2008	5.34	44.7	5.03	35.7	75.2	179.7
KUT0004	Hotspot	STC	5/7/2008	5.2	45.1	4.83	36.4	75.2	176.2
KUT0001	Baseline	STC	3/11/2008	5.21	44.8	4.91	36.1	76	177.2
KUT0001	TC200	STC	3/11/2008	5.2	44.7	4.88	35.7	75	174.3
KUT0006	Baseline	STC	3/11/2008	5.34	44.7	5.03	35.7	75.2	179.7
KUT0006	UV	STC	5/7/2008	5.2	45.1	4.83	36.4	75.2	176.2
KUT0006	TC50	STC	3/11/2008	5.21	44.8	4.91	36.1	76	177.2
KUT0006	HF10	STC	3/11/2008	5.2	44.7	4.88	35.7	75	174.3
KUT0006	Termination	STC	3/11/2008	5.34	44.7	5.03	35.7	75.2	179.7
KUT0007	Baseline	STC	5/7/2008	5.2	45.1	4.83	36.4	75.2	176.2
KUT0005	Static Load	STC	3/11/2008	5.21	44.8	4.91	36.1	76	177.2
KUT0005	Damp Heat	STC	3/11/2008	5.2	44.7	4.88	35.7	75	174.3
KUT0008	Hail	STC	3/11/2008	5.34	44.7	5.03	35.7	75.2	179.7
KUT0007	UV	STC	3/11/2008	5.21	44.8	4.91	36.1	76	177.2
KUT0008	Damp Heat	STC	3/11/2008	5.2	44.7	4.88	35.7	75	174.3
KUT0008	Hail	STC	3/11/2008	5.34	44.7	5.03	35.7	75.2	179.7
KUT0011	Baseline	STC	5/7/2008	5.2	45.1	4.83	36.4	75.2	176.2
KUT0011	Outdood Exposure	STC	3/11/2008	5.21	44.8	4.91	36.1	76	177.2

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Conclusion

In conclusion, completing this portion of the project allowed us to apply the new concepts learned in class by implementing our Project Deliverable 1 into the Django environment. We learned how to create a virtual environment, install Django, and properly use Django to display our HTML and CSS code with proper modification of files and links. Additionally, we learned that the value of using Django as a framework. The main hurdle of this project was understanding how to use Django efficiently. We did overcome this hurdle by watching the supplemental instructional youtube video along with the lecture PowerPoints provided in Topic 5. I believe we did a great job reducing user input (keystrokes) by implementing drop down options when available. However, i believe this project deliverable can be improved by dividing up the Register Module Form so that the input for the user is not so long of a webpage, which would cause the user to do less scrolling to fill the form. Additionally, a confirmation message could appear when input is submitted correctly instead of submitting to a new page.