

Active Solar Photovoltaic System (ASPS) introduction.

ASPS is compact and powerful PV charger/generator consisted of combination of the 3D photovoltaic system(MIT report)¹ mounted on the rotational base. Such as combination help to receive 2-4 times more energy from the same footprint as for traditional static PV panel and drop the heat loss. Most spectacular features could be explained through the test result s^2 performed during all kinds of the weather conditions.



no batteries

378 views • 2 years ago

First functional ASPS prototype (6 volt DC) supplied the energy both for own DC motor and external radio set (instead of own battery 3.7 volt) in the open field. Additional equipment: voltage regulator 7805.



solar panel in plastic bag

443 views • 1 year ago

Here the first ASPS prototype showed ability to generate(transform) enough energy for own DC motor work even from the light entered inside the plastic bag.



3 watt spot lamp +ASPS- Sun

57 views • 1 year ago

Second (multiple) ASPS device supplied energy for 3 watt LED lamp during fully weather condition.



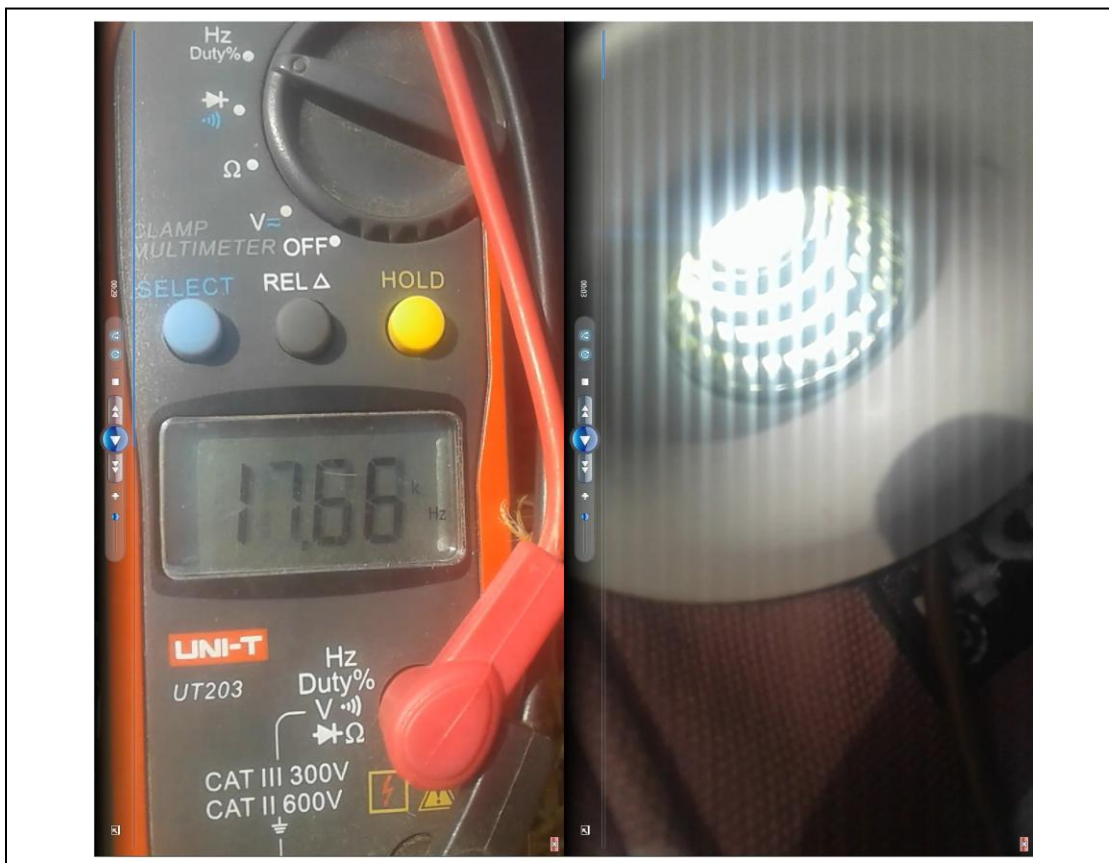
Natural weather conditions are different from Standard Test Conditions (STC) that are using PV panel manufacturers for determine the panels price. Combination of 25 degrees Celsius and irradiance of 1000 W/m (STC requirements) is able only in laboratory. In real life even at 10:00 AM temperature on the static panel was jumped over 40 degrees Celsius when irradiance was still far from the maximum (Solar position in the sky was still lower than noon maximum point). This is situation leads to the high thermal loss in efficiency of the PV cell/panel. Temperature of the rotated panels was 15 degrees lower

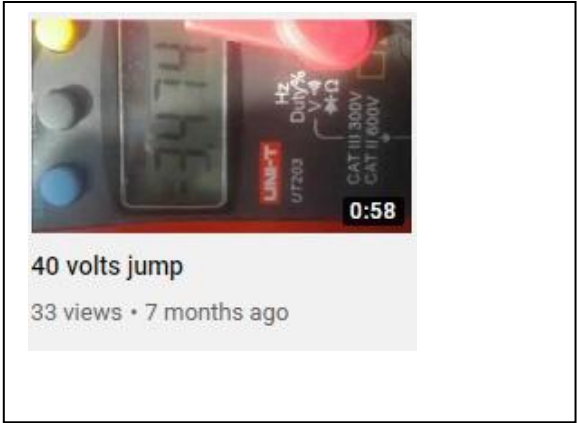
than for static mode. Speed of rotation was on the low level-around 1 rev/sec.



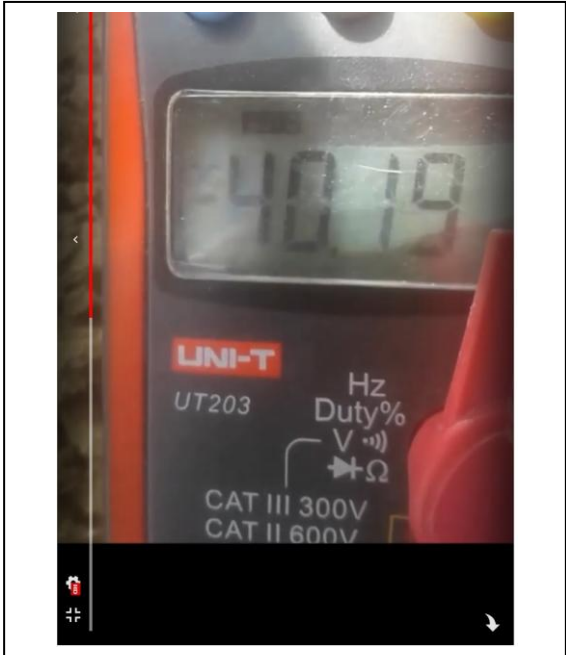
The forth prototype. Strange test and strange results. System that used electric energy from the panel for rotation exhibit transformation in the current form from the straight line(constant current) to the pulsed signal. But level of the measured current during the test is too high!

17 kHz(17000 Hz) meaning 17 thousand fluctuation per second seems to me like excessive for the so primitive system. I have no explanation for this result. Existing of the fluctuations were observed even on the video thanks to the 3 watt LED lamp.





Another test- and another unpredictable result. System designed to produce DC with the voltage equal to 20-24 volt suddenly jumped to 28-36 and 40 volt! I have no explanations neither for this kind of indication nor for the “OL”(probably “overload”, “out of limit” etc.).



Maximal measured power output of 10 watt is also higher than could be predicted (4-6 watt).



Maximal designed voltage level received during the tests was 60 volts. Test performed on 24th May of 2019 at 9:30-10:00 AM near Kiryat Gat. Hamsin day. In the morning sky was totally closed by heavy clouds. ASPS mark IV still was able to transform visible light into DC of 60 volt.



All those results allows me to plan the next development of the ASPS generators:



ASPS generator are extremely flexible and could be easily adopted to different client requirements. Small powerful clean generator could be very demanded between great numbers of clients.

I started to think about my invention after December of 2013th when some inhabitants of Jerusalem waited for electric grid recovery during three days. Such as device have to be indispensable for the areas suffered from the natural and artificial disasters. Besides that people that have no enough free area for establishing of the traditional static PV systems will highly appreciate this kind of generators. It's impossible to forget about specific group of the possible ASPS users. I am meaning EV and E-bike owners. There is no even one existing commercial PV system mounted on the car or bike that was able to fulfill daily energy demand that vehicles. Moreover there is no even one commercial PV system that was able to promise this achievement in the close future.

But ASPS can. Let's start it!

Best regards,

Alexei Grigoriev

¹ - MIT report is possible to find here <https://lnkd.in/gAE2VGB>

² – Video with some results is possible to find here:
<https://www.youtube.com/channel/UCR3jlbPixSEA0CfSkVTJdZA/videos>