

Project developed in VHDL and Python

The project consists of obtaining photoresistance data (LDR) and solar panels.

Parts of the project:

- 1 unit of PFGA Spartan 6
- 2 units solar panel 6 volt, 3 watt
- 2 units of ADC model ADS1256
- 2 voltage sensors FZ0430

Development in VHDL:

Solar panel 1: will be fixed horizontally and will have a photoresistance (LDR) to measure lumens

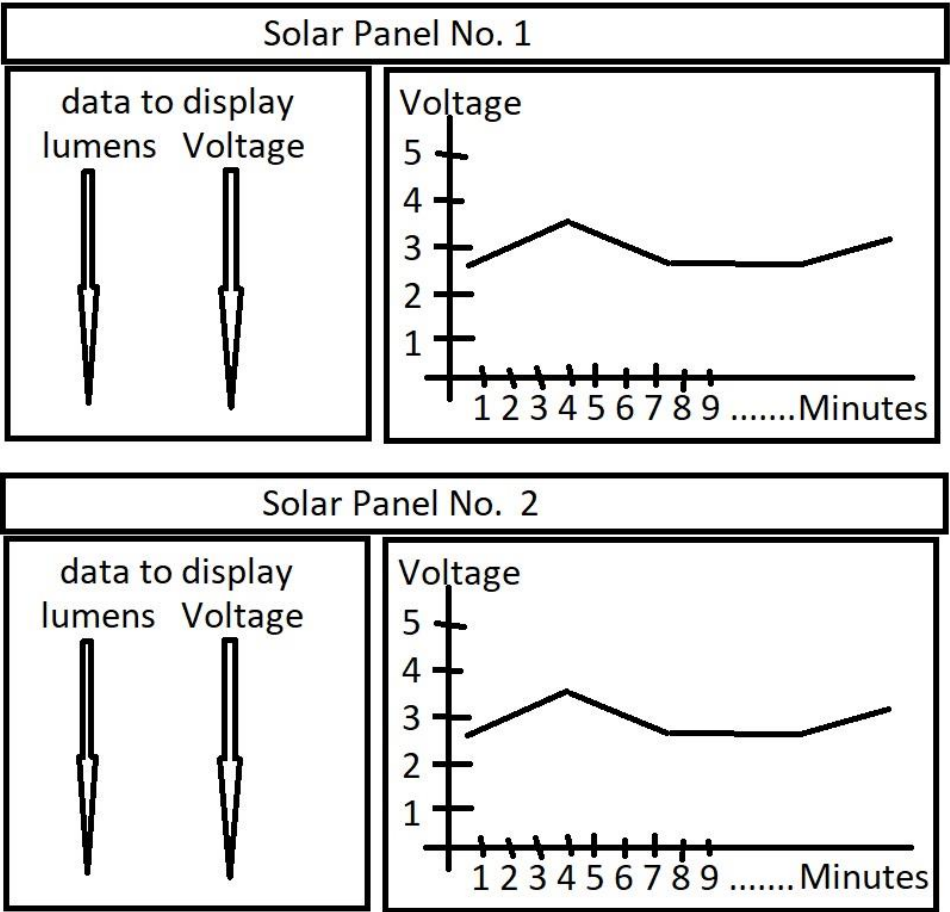
Por average of the ADC we will obtain the signal of the LDR and it will be saved every 12 seconds, and by means of the voltage sensor FZ0430 the voltage data will be captured every 12 seconds. The data will be stored in the FPGA's memory.

Solar panel 2: this will move 180 degrees by means of a servo motor to follow the sun by means of 9 photoresistance (LDR) installed in a semi-sphere separated 20 degrees. Photoresistors (LDRs) will capture sunlight and move the servo motor to capture sunlight on the panel.

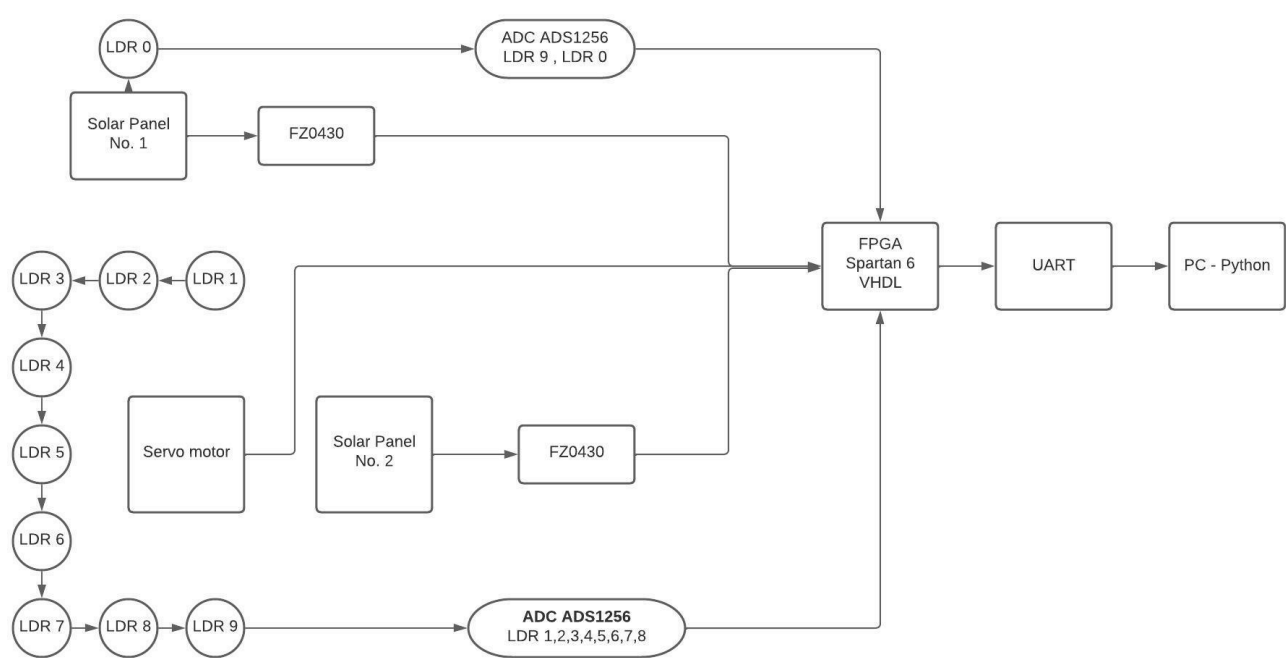
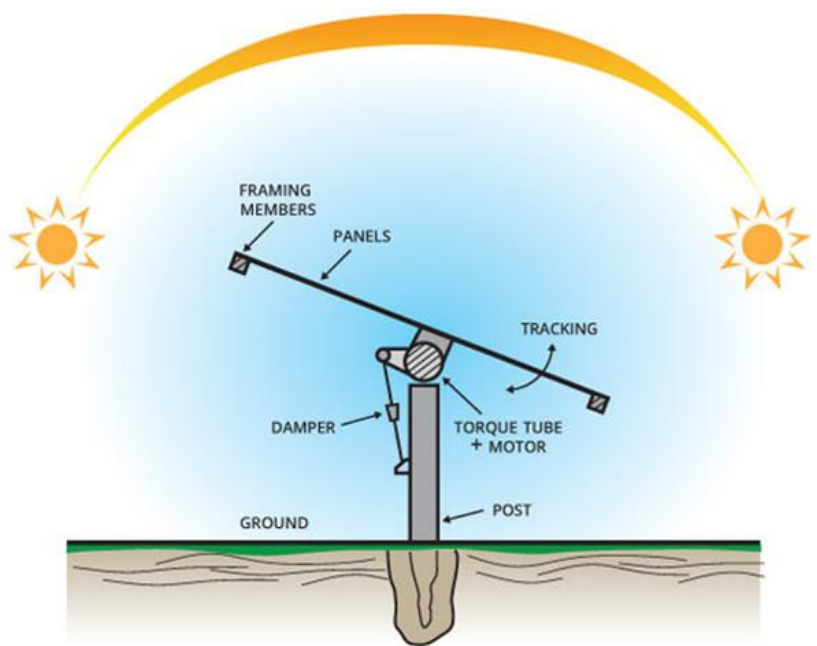
Through the ADC we will obtain the signal of the LDR s and you must compare each data to know if it moves the 20 degrees, if the two LDR data are equal it will move 10 degrees and when it is greater one of the data will move to the angle that follows, example LDR 1 = 10 degrees and LDR 2 = 30 degrees, as LDR 1 and 2 are the same, the servo would move to the angle of 20 degrees and being LDR 2 greater than LDR 1 the servo motor would move at the angle of 30 degrees and data obtained will be saved every 12 seconds in lumens, and through the voltage, sensor FZ0430 the voltage data will be captured every 12 seconds. The data will be saved in the memory of the FPGA.

Python part:

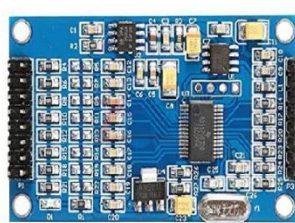
all data will be passed to a database via Python to the PC. The data will be displayed on the example screen of the screen to be developed.



Example Solar Panel No. 2



FZ0430



ADS1256



servo motor



FPGA Spartan 6



Solar Panel

The model where the components will be assembled

