

SMART PARASOL

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1 Introduction

In our high school there is a table of conviviality, and to increase the comfort of the users, we had the idea to protect it from the sun by installing a parasol. This parasol will be able to electrically manage its opening and closing autonomously according to weather conditions. Our main concern being sustainable development, we decided to equip the parasol with a photovoltaic surface to ensure the entire autonomy of the entire system. In addition, we chose to use the most of this clean energy. To do this, we decided to add features to make this table more comfortable.



2 Development

The energy produced by the panel is sent into batteries and then the batteries power all the features and sensors. These sensors are connected to a microcontroller that processes the data and sends the order to the sunshade motor to close or open if necessary.

3 Results

On the top petal we could fix a panel of 1.00 x 0.60m max. We had a solar panel of 0.96 x 0.55m at our disposal in our school to make measurements. After doing these measurements, we found that the panel provides 324 Wh / day. This is enough to supply all the features available and allow 5 openings and closures of the parasol.

4 Future work

The project is not finished and we will now try to realize it in our school. This would be for us a satisfaction that future students use our umbrella.

5 Conclusion

This project is very rewarding for us because we had to do some research. And we had to work on a lot of things (electricity, structure, programming, weather ...).