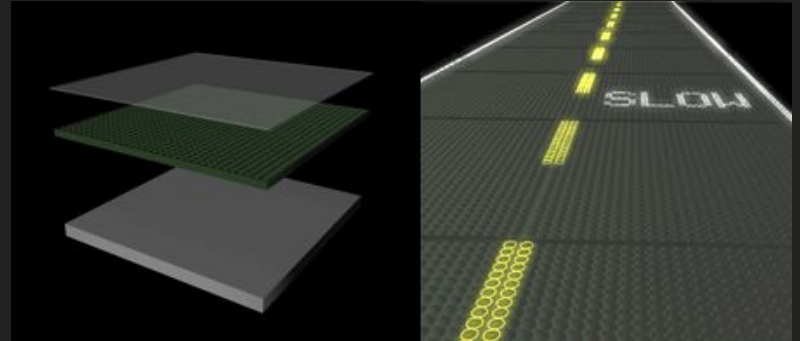


Solar Powered Roadways

Skyla St John



Background

In the early 2000s, the first prototypes of solar tiles began to arise

One of the earliest and most publicized projects was by Solar Roadways, an American company founded by Scott and Julie Brusaw in 2006

Solaroad Netherlands 2014

Wattway Tourouvre-au-Perche, France 2016-2019

Solar Highway China 2018

The Ray Wattway Peachtree Corners, Georgia 2020



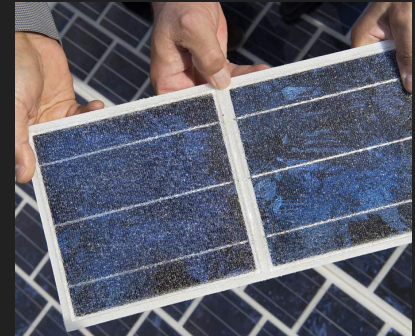
Brusaws, Solar
Roadways

Background

Solaroad, Netherlands 2014



The Ray, Georgia 2020



Objectives

Environmental impact and carbon emission reduction

Energy efficiency

Structural integrity and efficiency

Enhanced roadway safety and overall functionality

Economically efficient

Collaborative approach structurally and environmentally

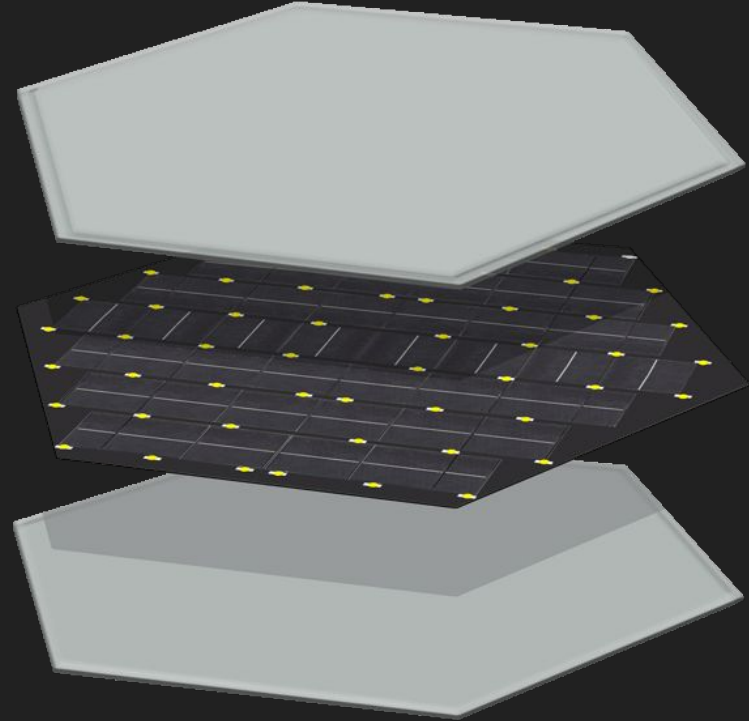
Nature of the Project

Design a solar road tile
consisting of multi layers for
maximum efficiency

Surface Layer.

Middle layer(s).

Base layer.



Timeline

Sept 1-7. Research and planning, define practicalities of the design

Sept 8-14. Conceptual and draft drawing development

Sept 15-21. CAD design preparation

Sept 22-28. Second progress presentation, CAD design preparation

Sept 29-Oct 5. Initial CAD design development

Oct 6-12. Final CAD design development

Oct 13-19. Physical model preparation

Oct 20-26. Initial physical model development

Timeline

Oct 27-Nov 2. Final physical model development

Nov 3-9. Testing and modifying the model, third progress presentation Nov 8

Nov 10-16. Final testing and model modifications

Nov 17-23. Compare my design to preexisting solar tiles

Nov 26. Final draft due for review

Dec 6. Project due

Dec 8-14. Final presentation preparation and completion

Calculable Data

Solar cell conversion efficiency (Percentage of sunlight converted into energy)

Maximum load capacity from stress testing

Current, voltage, and power output of the solar cell



Supplementary Goals

Design additional functionality features to integrate into the solar tile:

Anti slip coating to the surface layer

Heatable surface layer

Load/pressure sensor feature



Questions?