A Look at Sustainability Through Solar Panels and Fake Meat

By Ryan Smith

Background on Solar Panels

Our energy production is largely dependant on non-renewable resources. Even ignoring climate change, we must move on from these resources, they will run out. That's where renewable energy comes in. According to the Energy Information Administration (EDA) renewable energy is "energy from sources that are naturally replenishing but flow-limited; renewable resources are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time." More specifically we will cover "Study of Low Cost and High Efficiency Intelligent Dual-Axis Solar Panel System"

Technical Aspects of the solar panel study

This study is about introducing low cost, efficient, and intelligent solar panels to areas without much electrical infrastructure. The panels use a mixture of hardware and software to optimize its output.

- Hardware
  - four light-related resistors (LDRs)
  - Two servo motors to move the solar panel to the maximum light
  - Arduino UNO controller
- Software
  - Written in the programming language C

Outcome of solar panel study

“ The results show that the dual-axis rotation mechanism and the dust removal ability effectively maintain the performance of the solar cell panel and the effect of dust accumulation after the dual-axis rotation” (Chang, Zhou)

Value Generated from solar study

The viability of using solar panels in places that were considered, suboptimal, greatly increases. By doing so in 3rd world countries, the quality of life, and gdp can be increased. Leading to economic gains, and stimulating the world's economy.

Background on Fake Meat

Fake meat has been a hot news topic for the last few years. “Animal agriculture is responsible for 14.5% of global greenhouse emissions” (Newburger). If fake meat takes off it could greatly reduce those emissions. “Beyond Burger generates 90% less greenhouse gas emissions and requires 46% less energy, 99% less water and 93% less land compared to a quarter pound of U.S. beef”

Technical Aspects of Fake Meat

Water, soy protein concentrate, coconut oil, sunflower oil, and natural flavors are listed as the 5 main ingredients of the Impossible Burger, a brand of fake meat. Soy leghemoglobin is the ingredient that makes it “bleed” like regular meat (Reiley). The fake meat is made, mostly, of these materials and creates a tasty, and convincing meat substitute.

Outcome of Fake Meat

Fake meat has managed to get a foot in the door, with the Impossible Burger brand being in over 17,000 restaurants worldwide (Reiley). As more and more millennials eat less meat, the more of a market share fake meat will have (Newburger). As more money is invested into fake meat more innovations will be made, potentially leading to lower emission levels from producing fake meat.

Value Generated by Fake Meat

Fake meat creates a guilt free alternative to traditional meats, is better for the environment, and frees up resources previously dedicated to agriculture. The amount of land and water it takes to sustain livestock is incredibly high, and the freeing of those resources could directly benefit society.

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