

# **Eco-Mated Irrigation System by Omar Iglesias | Jose Sotomayor | Daniel Sotomayor | Elvis Fernandez | Maikel Raymat**

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The continuous dramatic growth of the world population demands an increase in the world of agricultural production to satisfy the increasing need for food of current periods. At the same time, to help satisfy the increase of the agricultural production, larger and more efficient irrigation systems need to be implemented. However, most current irrigation systems consume a lot of fuel-based energy while they lack water management capabilities. To help solve this problem, a prototype irrigation system that combines the use of renewable energy with environmental data obtained from censoring devices was built. The objective of the project is to provide a system that can efficiently manage the water usage by obtaining information from several sensors, including temperature, moisture, humidity, and pressure. The data obtained from the sensors will be stored and processed with the help of a micro-controller that in turn will make the proper decision regarding water usage and system control. The prototype functions using solar energy through a power system built out of photo-voltaic arrays, a maximum power point tracker device (MPPT), and two 12V batteries. Reducing water usage and efficiently use renewable energy is crucial to protect the environment from unnecessary harm, especially with the increase of the global population each year. The Eco-mated Irrigation System will help visualize how the combination of renewable energy and the implementation of new censoring technologies is a suitable solution to efficiently manage water resources, while combining the use of green energy.