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**Science, Technology, Research and Innovation for Development  
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**Smart Farm for All-Seasons Tomato Production**

**GRANTEE:** De La Salle University (DLSU)

**PRINCIPAL INVESTIGATOR:** Dr. Elmer P. Dadios

**US UNIVERSITY PARTNER:** The University of Arizona (UA)

**COLLABORATING PARTNERS:** University of Rizal System (URS)  
Batangas State University (BatSU)

**GRANT PERIOD:** December 16, 2016 to December 15, 2017

**CONTRACT AMOUNT:** Php 4,699,481.80 (approximately USD100,000)

**Crop production without interruption**

Food security is a major problem the world faces today. The Philippines, as one of the most populous countries in the world, struggles with this in particular. The country's unpredictable weather conditions destroyed some of the local agricultural infrastructure, and climate change often results in problems with water irrigation for crops. These problems lead to reductions in the harvest of agricultural products such as rice, corn, and tomato.



*Tomato is one of the most cultivated vegetables worldwide and is extensively grown as a secondary crop*

One of the best solutions to address these challenges is to design sustainable continuous crop production. The overall objective of this project is to design and develop a smart farm for all-seasons tomato production. Tomato is one of the most cultivated vegetables worldwide and is extensively grown as a secondary crop especially in rice- and corn-based farming systems. The incorporation of smart farming technologies, like continuous plant growth monitoring and optimized water and energy resource management, yields efficient crop production throughout the entire year.

This project uses interdisciplinary research and development encompassing different fields of engineering such as system automation design and fabrication, machine vision for tomato growth characterization, sustainable energy optimization, water irrigation optimization, and hardware-software overall system integration conducted by DLSU.



*Dr. David Hall, STRIDE Program Chief of Party and research team led by Dr. Elmer Dadios during the launching of the “Tomato for All-Seasons Crop Production” in Antipolo, Rizal.*

UA conducts environment chamber design, and the URS has designed a mini fishpond intended for organic irrigation. The URS also identified tomato plant growth parameters. BatSU developed the tomato plant agribusiness model. With this collaboration by and between various institutions the project aims to continue with the development of an automated post-harvest process for the tomato.

The initial field deployment of the smart farm in Maybankal, Morong, Rizal, provides a working venue for continuous improvement of both farming technologies and socioeconomic development. Overall, the improvement in the tomato production directly impacts the local farmers, resulting in economic growth of the country.