

SATAGG_5

USB_1

USB_2



A PROGRAM OF



Puerto Rico
Science, Technology
& Research Trust

CHALLENGE TO INNOVATE NASA EDITION

DEMO DAY

PARTICIPATING TEAMS

In collaboration with:



TTO TECHNOLOGY
TRANSFER OFFICE

PCI_16x

SATAGG_6

SATA6G_5 USB_1 USB_2



AGRO TRACK

PCI_16x
SATA6G_6



Agro | Team 1 | Spray Cube

Technology

FlashPose: Range and intensity image-based terrain and vehicle relative pose estimation algorithm.

Description

Considering the excessive waste of nutrients and chemicals used by the agricultural world, this solution, the **Spray Cube**, promises to solve the issue with a unique use of equipment, which solves the problem from the core. This product can observe a plant's needs and give said nutrients, allowing the industry to not waste product and not over saturate the soil, resulting in less chemical spent, saving money for the company, and a precise worker.

Team Members

- Dylan Carire
- Justin de la Cruz
- Moisés Robles Pagán



Agro | Team 2 | Rover

Technology

FlashPose: Range and intensity image-based terrain and vehicle relative pose estimation algorithm.

Description

This solution is an autonomous all-terrain **Rover**, designed for picking plantains and bananas, but not limited to those specific fruits. Its movement will be guided by proximity sensors and sonar technology. It also has a mechanical arm that uses flashpose technology to identify the product and adjust the position of the vehicle. In this way, it will be able to do the cutting function and collect the harvest. It has a collector drawer, with a roller platform that uses gravity to its advantage when the fruit is cut. The platform is designed to collapse as the drawer is filled with the weight of the plantains. The rover is fully electric, autonomous and programmable for different types of terrain and farm configurations. The design of the rover allows us to adjust it for different types of hanging fruits and vegetables with only a few modifications.

Team Members

- Adrián Marrero
- Miguel Álvarez
- Gabriel Sierra



Agro | Team 3

Technology

FlashPose: Range and intensity image-based terrain and vehicle relative pose estimation algorithm.

Description

Solution for tomato farmers that want to automate their harvest, this product is the help they need. It allows them to have accessible and efficient workforce so they don't have to worry about losing crops due to shortage of labor.

Team Members

- Christopher Ayala
- Diego J. Batista Adorno
- Irving Montero Colón



Agro | Team 1 | YLC

Technology

Microwave-Based Water Decontamination System

Description

Solution for the hydroponic sector that wants to produce clean water in an inexpensive way. YLC company is the preferred solution to decontaminate water, because its portable, chemical-free system allows them to produce pathogen-free water enabling them to improve the quality of the water used in their crops without any waste, resulting in a sustainable and affordable way to achieve it.

Team Members

- Coral Gordian Morales
- Luis Anthony Rosado Pagán
- Yara López Mendizabal



Agro | Team 2 | M-Wave 2.0

Technology

Microwave-Based Water Decontamination System

Description

Solution for, but not limited to, the agricultural segment that want to have access to water decontamination systems that do not waste too much water or time. The M-Wave 2.0 is the preferred system, because it is time-saving, wastes little to no water, is very portable and adjustable, allowing them to have an efficient way of water decontamination, enabling and facilitating them to have easier ways of obtaining quality control, resulting in healthier and better looking crops, that in turn can generate more money for the agricultural sector.

Team Members

- Denis Munet
- Nadya Jiménez Rodríguez
- Wilbert Hernández



Agro | Team 2 | ADA

Technology

Multi-Stage Filtration System

Description

Solution for agriculture transport businesses that want to deliver fresh, high-quality goods. ADA is the preferred filtration system to do so, because it allows them to protect and store their produce for longer periods of time, resulting in less food loss and greater revenue.

Team Members

- Damián Olmo López
- Diana Aponte Claudio
- Eduardo Ferrer Ibarra



Agro | Team 3 | PureBiz

Technology

Multi-Stage Filtration System

Description

PureBiz designed for that entrepreneur dedicated to the cultivation of cannabis who wants to eliminate the fungicides within their cultivation and maintain proper air quality control. This product has a combination of processes that improves the efficiency of a traditional filter and eliminates the need for a fungicide for pest control. PureBiz improves the quality of your product, while ensuring you comply with air control regulations to avoid fines. Cleaner crops, better buds.

Team Members

- Joan Manuel Cuadrado García
- Johnny Santana

SATA00_3 USB_1 USB_0



PHARMA TRACK

PCI_16x
SATA00_0



Pharma | Team 4 | Windy

Technology

Multi-Stage Filtration System

Description

Windy, is a solution for individuals ages 35 - 60 with respiratory illnesses and also for businesses that require higher health standards. **Windy** will purify indoor environments without moving the air filtrations system all over the place.

Team Members

- José Andrés Fabre
- Shania Lind González



Pharma | Team 1

Technology

Multi-Stage Filtration System

Description

Solution for companies with controlled environments that want to reduce the time and money needed to replace air filters and avoid regulatory non-compliance. The Multi-Stage Filtration System is the preferred air filtering solution, because this self maintaining pre-filters allows them to extend pre-filter and HEPA filter life, allowing them to focus less on filter maintenance, resulting in considerable cost and labor savings.

Team Members

- Francisco E. Vázquez Ramírez
- Jorge David López Irlanda
- Nadia M. López Ramírez



Pharma | Team 2 | Dolos / Astrae

Technology

Precision Low Speed Motor Controller

Description

Solution for pharmaceutical companies that want a safe and cost effective way of storing drugs. **Dolos** company offers **Astrae** (the product) as the preferred operating system because it allows you to precisely measure drug dosages having a precise technology without the high cost resulting in meeting the high demand for vial filling machines.

Team Members

- Gail Muñoz
- Nelson Camacho
- Raymond Crespo



Pharma | Team 1 | ThermalBuddy

Technology

Improved Infrared Contrast Analysis and Imaging

Description

ThermalBuddy is a scanning devices using non invasive near infrared technology providing a 360 degrees analysis of tablets to detect flaws in composition and improving the performance of the production line.

Team Members

- Alexey Rodríguez
- José Cruz Quiñones
- Kiara Rosario Cordero



Pharma | Team 2 | InfraFocus

Technology

Improved Infrared Contrast Analysis and Imaging

Description

Solution for the pharmaceutical industry that wants to reduce time and money. **InfraFocus** is the preferred technology to use, because this infrared technology allows them to view imperfections before a break happens, resulting the reduction of damaged pills.

Team Members

- Hakeem Villegas Hernández
- Angel López
- Marc González



Pharma | Team 1

Technology

Passive Smart Container

Description

Solution for hospitals that want to better manage their untagged, high-cost items. Passive Smart Container is the preferred solution because it offers better control with precise readings that allows them to minimize human errors, enabling them to have precise data of their inventory, resulting in compliance with government regulation, improve productivity and reduce time of inventory management.

Team Members

- Alberto Reyes García
- Francisco Matos
- Krisalys Ríos Bosques



Pharma | Team 2 | INVO Inventory System

Technology

Passive Smart Container

Description

Solution for pharmaceutical and manufacturing companies that want full control of their inventories. **INVO Inventory System** is the preferred fully integrated inventory control solution, not only for our higher resolution capability, but also for our flexibility of implementation and full integration with other systems that allows them to keep track of inventory inside containers and dispensers in a passive way, enabling them to make better projections for operations in a faster and reliable way, resulting in competitive advantage for them.

Team Members

- Bryan José Capacete Cruz
- Guillermo Avilés
- Samuel Torres



Pharma | Team 4

Technology

Passive Smart Container

Description

This smart container aims to monitor vaccines' state while in transportation. In conjunction with a temperature sensor, it will allow to identify if the vaccine's container temperature is within specification.

Team Members

- Stephanie Cruz Rodríguez
- Giovanni Rosario
- Joseph Nieves del Valle



Pharma | Team 3 | Single-Use Systems (SUS)

Technology

Passive Smart Container

Description

The pharmaceutical industry is shifting towards **Single-Use Systems (SUS)** and is having problems with volume measurements and inventory tracking inside these containers and resource management issues. The team has adapted the Passive Smart Container (PSC) technology patented by NASA to allow accurate level measurements and detailed inventory management for these unstructured SUS bags, saving the companies time and money in the process.

Team Members

- Edwin Lafontaine
- Julián Rivera
- Sebastián Rivera

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If you want to contact some of the
Participating Teams, please send us a note to:



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