Portfolio

PRODUCTS & SERVICES 2022

Blacksquare.com.co

BLACK SQUARE

Social Networks
BlackSquareSAS

BLACK SQUARE is an engineering company based in Bogotá, dedicated to the development and commercialization of its own technological solutions based on the integration of: robotics, sensing and analytics. For more than 7 years we have consolidated as a strategic ally in terms of technology provided information of interest for timely decision making.

About us

BLACK SQUARE is a company founded in 2015 by a group of aerospace engineers for the main goal of offering affordable state-of-the-art tools and technologies in Colombia.

For more than 7 years we have established ourselves as a strategic ally in terms of technology, providing information of interest for timely decision-making. We work in 4 areas of operation:
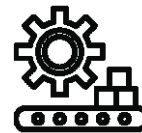
Digitalization

Drone

Hyperspectral

Industrial

Mission

Accelerate the transition of our allies towards the adoption of technological solutions derived from the integrations generated in our areas of operation.

Vision

We project a panorama where our solutions technologies become standards within the value chain of our allies.

Advantages of Our Technology

Fast Information Access

Our technologies allow to rapidly survey precise data and critical points, in many cases without process interruptions and without depending on third parties.

Increase in Efficiency

We can perform processes in fractions of time and resources compared to the application of traditional methods, operating in places difficult to access and improving security of the staff.

Cost Reduction

Alternative technologies will also be more economical in their acquisition, seek reduce execution time regular processes and thus achieve a decrease in the overall project costs.

Risk Reduction

The integration of our technologies helps in reducing risks, for example, in altitude work, monitoring of large extensions of land, and when surveying sites that are risky or hard to access.

Products & Services

AREAS

Digitalization

Hyperspectral

Drone

Industrial

Digitalization

Area

BSGIS

The **BSGIS** is a **System of Georeferenced Asset Management**. For example: Applied in the Agro sector, during the Pre-Harvest, it allows to carry out administration of digital crops plant by plant accurately thanks to GPS positioning.

Deployment

Desktop App	**Moblie App**	**Custom Form Digitizing**	**Crop Digitizer**	**Report Generation**

BSTRACK

The **BSTRACK** is a **System of Temporal Process Traceability.** For example: Applied in the Agro sector, during the Post-Harvest, it allows to carry out the digital traceability of the transformation processes of the raw material, thus supervising each variable independently.

Deployment

Desktop App	**Moblie App**	**Custom Form Digitizing**	**Transformation Process Digitizing**	**Report Generation**

Drones
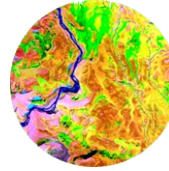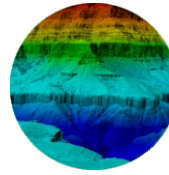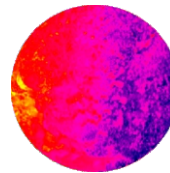## Area

Photogrammetry

Multispectral

LIDAR

Thermal

PRODUCTS

HERCULES X4

The **HERCULES X4** Drone is an industrial multirotor **quadcopter** type. It has **4 motors** that work from autonomously distributed in 4 separate arms. It has a load capacity of up to **6 kg** and a flight time between **30 – 55 minutes.**

HERCULES X8

The **HERCULES X8** drone is an aircraft of the industrial multirotor octocopter type. It has **8 motors** that work from autonomously distributed in 4 arms. It has a load capacity of up to **12 kg** and a flight time between **15 – 55 minutes.**

Hyperspectral

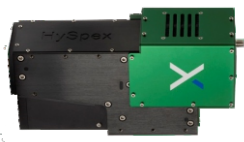Area
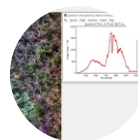
PRODUCTS

CLASSICS
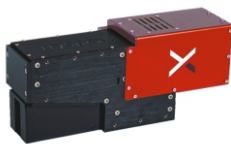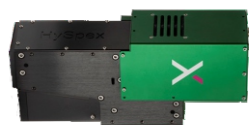
HySpex SWIR-640

HySpex VNIR-3000 N

HySpex SWIR-384

BALDUR

HySpex Baldur V-1024 N

HySpex Baldur S-640i N

HySpex Baldur S-384 N

MJOLNIR

HySpex Mjolnir S-620

HySpex Mjolnir V-1240

HySpex Mjolnir VS-620

Industrial
Area

Cocoa Sorting Machine

Measurement Machine in Greenhouses

Pavement Analysis Instrument

Fluorescence Microscopy

CONSULTING

PROJECT DEVELOPMENT

We provide consulting services for R&D projects, where we carry out scientific and technical support in the formulation, execution and validation of research and development projects based on the integration of machines and sensors for all types of industrial applications. The process to achieve this goal consists of four phases:

- Conceptual Design
- Detailed Design
- Prototype Development
- Prototype Validation

INDUSTRIAL PROJECTS

Product of our scientific vocation and the entrepreneurial spirit that accompanies us, we have developed a series of industrial solutions that are the result of the execution of "turnkey" projects.

These solutions consist of the manufacture of equipment that integrates two or more areas of operation, prepared from a specific need and providing a scalable solution. These solutions turn out to be at the hardware and software level and include the design, prototyping, operation, development and implementation that best suits.

Success Stories

MACHINE DEVELOPMENT FOR REAL-TIME CLASSIFICATION OF WHOLE COCOA GRAINS USING HYPERSPECTRAL TECHNOLOGY

The development of this machine consisted in the application of Spectral Data Analytics to whole cocoa beans, to determine their fermentation properties (chemical properties) from their reflection properties (optical properties), measured through a Hyperspectral Hyspex Sensor.

For this, a prototype was built that allowed the classification and separation in real time of whole cocoa beans based on their degree of fermentation. After validating it with producers, the optimization of this machine would be a very beneficial element in the cocoa value chain, since on the one hand the producers could obtain a fair price for their products, while the processors or intermediaries would have the guarantee of receiving a product with the demanded quality.

DEVELOPMENT OF A MACHINE FOR EARLY DETECTION OF NUTRITIONAL AND PHYTOSANITARY PROBLEMS IN CHRYSANTHEMUM CROPS

This project consisted of combining the disciplines of Spectral Data Analytics and Robotics, to build a prototype capable of allowing early detection of nutritional and phytosanitary problems in a greenhouse flower crop, the chrysanthemum.

The machine is made up of a terrestrial robot equipped with a Hyspex hyperspectral sensor, which would circulate through rails located in the flower beds capturing data, which would be processed in a geographic information system adapted to the crop to generate early detection maps.

With this tool, flower growers will be able to experience an increase in the quality of production and efficiently apply agrochemical products.

DEVELOPMENT OF A LOW-COST CALIBRATED MULTISPECTRAL SENSOR PROTOTYPE FOR THE GENERATION OF DIAGNOSTIC MAPS IN PANEL CANE CROPS

This project pursues the goal of breaking the gaps that have historically prevented Precision Agriculture from being focused on an audience made up of a profile of family producers.

For this, during the project, an adapted Precision Agriculture tool was developed so that its implementation is economically viable in a crop of importance in the country, which is also characterized by a profile of family producers.

The Precision Agriculture tool to be developed would be a prototype of a low-cost and calibrated multispectral sensor that allows the generation of five diagnostic maps at five specific times of the sugar cane harvest cycle.

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