

SMART SILOS

REAL TIME TEMPERATURE AND HUMIDITY MONITORING & CONTROL OF GRAIN BIN

Introduction

A Smart and power efficient mechanical silo specifically designed for controlled storage of grains to avoid its overtime deterioration.

The three key modules of the product are:

- Data acquisition and sensor housing
- Efficient power extraction from solar panels
- Data Signal Processing (DSP) and wireless transmission of information
- Control system development to maintain healthier internal environment with an attached power efficient heating ventilation system

Features

- Multiple contact, non-contact and comparative sensor deployment for better parametric estimation
- Octagonal placement of hatches on top of silo for reinforced vertical placement of contact sensor nodes
- Modular based node deployment mechanism for ease of service and replacement
- Feedback aeration system deployment to recondition the fed air conserving energy in the process



25%

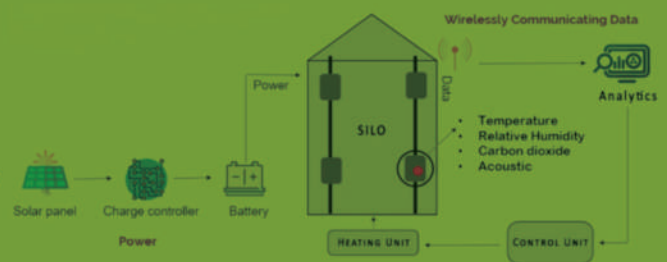
Agriculture sector forms 25% of the total Pakistan's GDP

35%

Of agricultural produce perish annually

12%

Percentage last decade's population rise relative to the increase in agricultural produce in folds



Contact Us

Directorate of Innovation & Commercialisation

CIE Building, NUST, Sector H-12, Islamabad



marketing@ric.nust.edu.pk

+92 51 90856241 | +92 51 90856231

Product Market

- Agri Industry
- Farmers

SOIL MOISTURE METER

Introduction

Moisture in the soil is an important aspect for agriculture, landscape irrigation and gardeners. Water can be supplied timely and efficiently if moisture in the soil is known and would also prevents water wastage. To address such issues, a device has been made that can calculate the percentage of moisture in the soil with precision. The meter is designed on the principle of Charge Time Measurement (Relative Capacitance) principle.

Features

- Cost efficient, all in one digital soil meter, easy to operate
- Soil moisture measurement with lab & field verified accuracy
- Temperature, Relative, light intensity and Humidity measurements
- Fruit and stem girth measuring dendrometer
- Built in Torch and user-friendly interface equipped with OLED display
- Data hold function to freeze the value on the display
- Operates from rechargeable & removable battery
- Battery percentage indicator
- Provision of wireless data transfer using (SMS, GPRS, LoRa, Wifi, MiWi, Zigbee)



Contact Us

Directorate of Innovation & Commercialisation
CIE Building, NUST, Sector H-12, Islamabad



marketing@ric.nust.edu.pk

+92 51 90856241 | +92 51 90856231

Product Market

- Agri Industry
- Federal and Provisional Agricultural Departments
- Pakistan Council of Research in Water Resources (PCRWR)
- Pakistan Agriculture Research Council (PARC)

FRUIT MATURITY METER

Introduction

The Fruit maturity meter uses near-infrared (NIR) spectroscopy to non-destructively estimate quality metrics such as dry matter Total Soluble Solids (TSS or brix) and titratable acidity. It has a wide range of applications, determining optimal harvest timing, to providing an objective analysis of produce quality of fruit in packing houses.



Features

- Non-destructively measure dry matter, brix, acidity
- Take measurement in seconds
- Works with dozens of commodities
- Effective crop management and harvest timing for fresh produce growers
- Lightweight, portable and precise
- Post-harvest quality management in cold storage and ripening rooms

Contact Us

Directorate of Innovation and Commercialisation
CIE Building, NUST, Sector H-12, Islamabad



marketing@ric.nust.edu.pk

+92 51 90856241 | +92 51 90856231



Product Market

- Local Fruit Growers
- Fruit Packing Houses

CUSTOMIZABLE AERIAL SPRAYING DRONE SYSTEMS

Introduction

The primary objective of this product is to provide precision agriculture services. By using this product, farmers will be able to spray pesticides on their fields using less liquid but with more effectiveness. Uniform spraying system of this product also results in increased crop yield. This product produces better results while consuming less water, time and spraying liquid.



Features

- Payload capacity up to 12 Kg/Ltr
- 7 Km Rx/Tx Range with DJI Controller
- Flight time 15 Min with full payload (enough for spraying 2 acres)
- Customizable hardware with reconfigurable payload options
- Saves 80% Water and 75% Time
- Autonomous and Manual mission modes

Contact Us

Directorate of Innovation and Commercialisation
CIE Building, NUST, Sector H-12, Islamabad



marketing@ric.nust.edu.pk

+92 51 90856241 | +92 51 90856231



Product Market

- Ministry of Agriculture
- Pesticide and Weedicide Industry
- Farmers