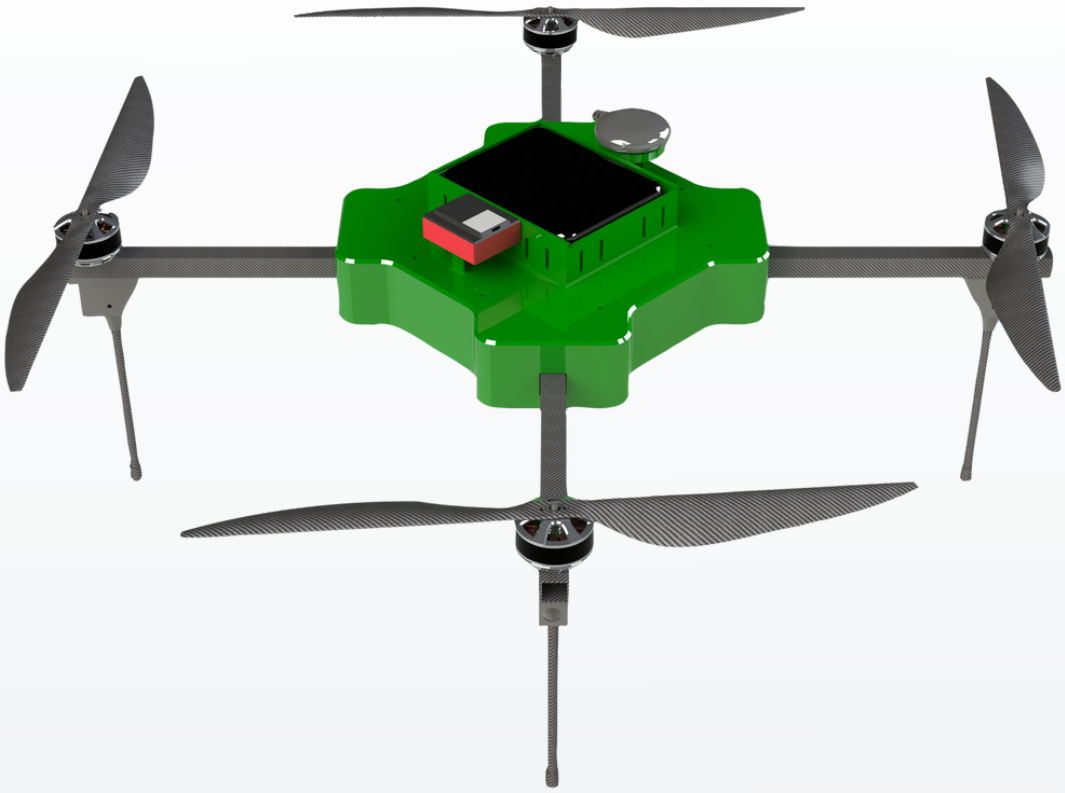
D'AVIATORS
CUSTOMIZED DRONE SOLUTIONS

# KRISHAK

Technology for Farm



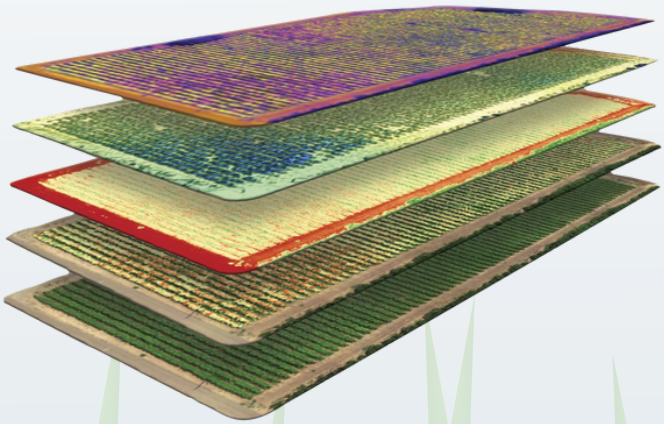
Thermal Layer

DSM

NDVI

Chlorophyll Map

High-Res RGB



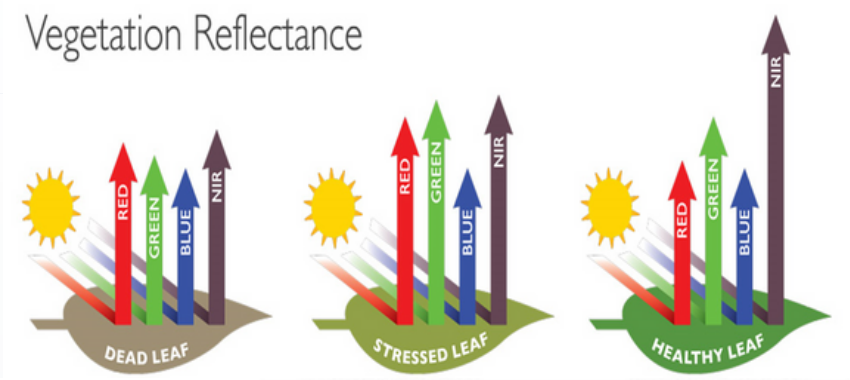
| Operational Range | Take-off Weight | Flight Time |
|---|---|---|
| Over 2 km* | 3 kg | Over 45 mins |

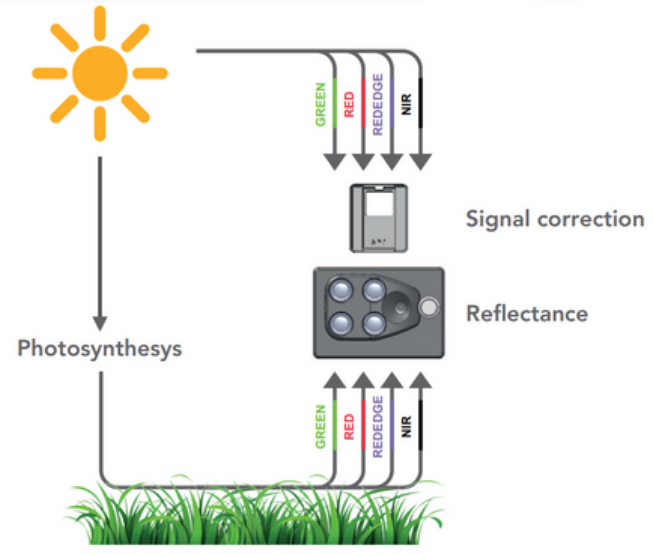
# Sensor Integration

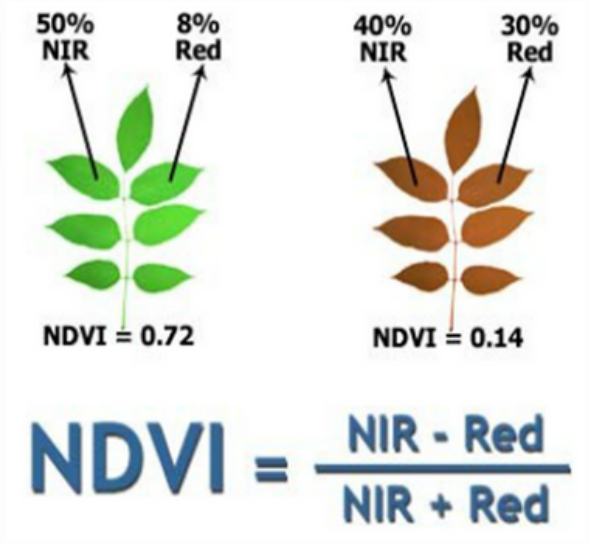
Sensor is developed specifically for the task in hand, multi tasked sensors are limited to drones due to there weight limitation.
Sensor is just one part of in whole gamete of data acquisition, processing & analyzing for desired results. We intend to cover this entire gamete of platform, sensor, processing & analysis.

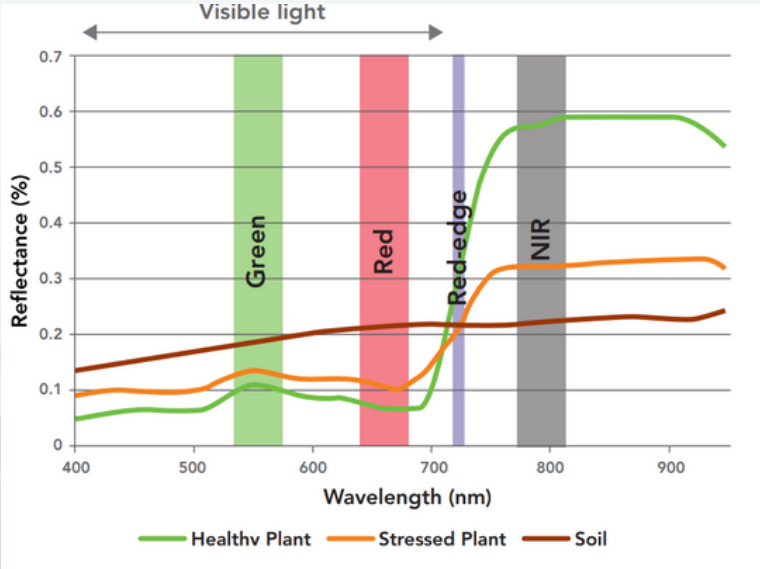
# Concept

- Stress crop can be seen in Infrared & Near-Infrared
- Chlorophyll absorbs Infrared light & stressed plants absorbs less chlorophyll.



# Data Acquisition

- Krishak UAV equipped with near infrared camera sensors allow drone to see spectrum of light that plants use to absorb light for photosynthesis.
- Acquired data is then processed using NDVI ( Normalized Difference Vegetation Index ) crop health can be monitored.
- Processing software allows user to change the value in order to reflect a specific crop type & even in which stage a specific crop is in.
- AI (Artificial Intelligence) & GNSS (Global Navigation Satellite System) data can be fused to Geo-Tag location and store in database.

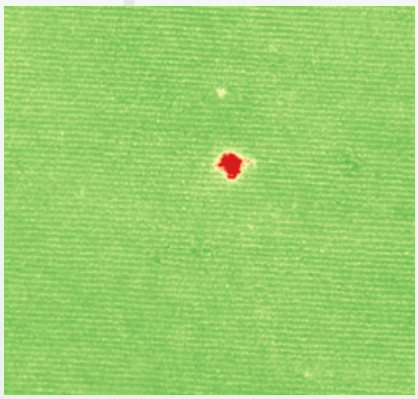
# Applications

### Vegetation health mapping

Create High-Resolution maps of the field, using advance filters to extract crop health information.

### Weed Detection

The Weed Pressure algorithm analyzes high resolution Drone data, to generate a weed pressure map ranging from 0-20,ng

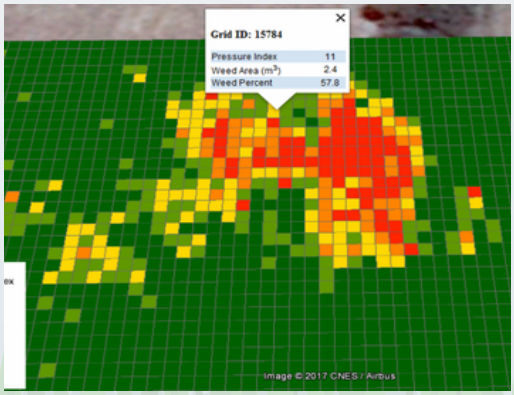


### Disease detection

One of the biggest challenges faced by farmers is detection of diseases in early stage of growth of crop.
Krishak UAV uses image processing method to detect and identify crop diseases and highlight the infected crop area using coordinates from the GPS module attached to the Drone.

### Irrigation and water management

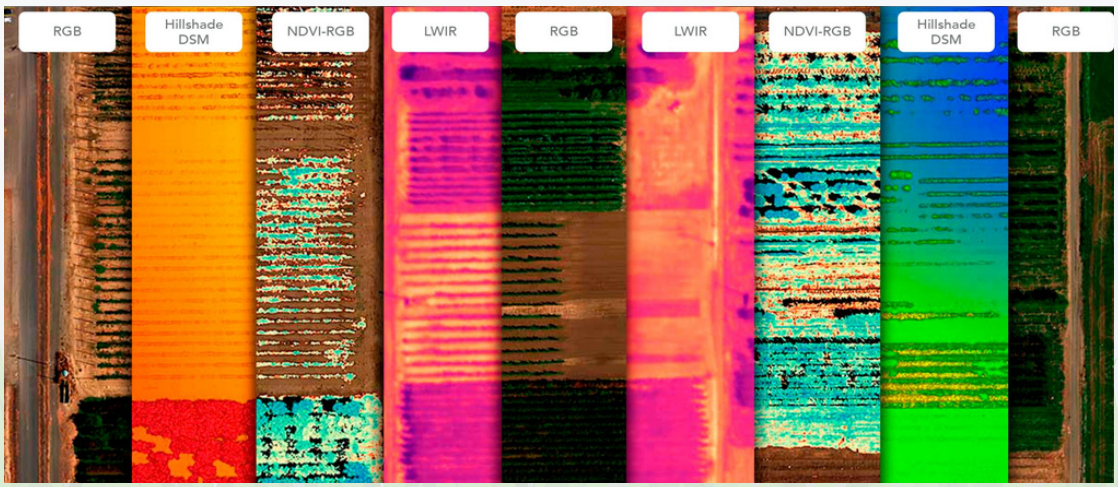
Krishak UAV equipped with thermal camera, can provide excellent insight areas that have pooling water or insufficient soil moisture. These issues severely affect the crop quality.

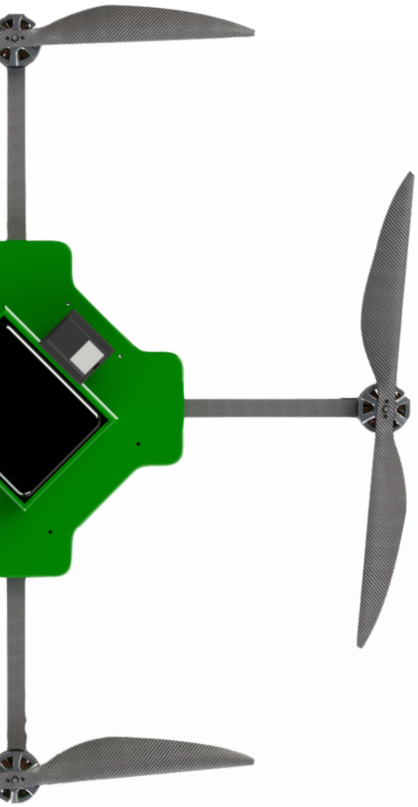


# Advantages of Precision Farming

- Increase Yields – improve production, efficiency and higher yields by identifying problems before they happen with increased crop health awareness & frequency.
- Save Time – Drones can be setup and deployed quickly. Ease of use allows farmers to gain information routinely or whenever they need it.
- Plan for future – Generate high resolution ( Orthomosaic ) maps for better crop planning and land management.

# Real Time NDVI Solution



# KRISHAK

## SPECIFICATIONS

**Endurance**
45 mins

**Range**
2 km*

**Weight**
3.0 kg

**Cruise Speed**
5m/s

**Max. Ceiling Height**
4000m AMSL

**Operating Altitude**
120 m AGL / can climb upto 1000m

## FAIL SAFE FEATURES

- Return to Launch RTL on low battery
- Return to Launch RTL on Communication failure
- Return to Launch RTL on fence breach
- Obstacle Sensing*

## GROUND CONTROL STATION GCS

- Tablet
- Handheld Radio Controller

## PAYLOAD & CAMERA OPTIONS


**Multispectral sensor**
4-band

**RGB resolution**
16 MP, 4,608 x 3,456 px

**Single-band resolution**
1.2 MP, 1,280 x 960 px

**Multispectral bands**
Green (550nm ± 40nm)
Red (660nm ± 40nm)
Red edge (735nm ± 10nm)
Near infrared (790nm ± 40nm)

## GCS APPLICATION SOFTWARE

- Pre-flight self check
- Realtime data streaming (Map & Video)
- Live Flight parameters

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