



HG ROBOTICS

HG Robotics Company Limited

Motion | Information | Everywhere

- Who We Are
- What We Do
- HGR Team

Who We Are

From Five to Hive

Who We Are – From Five to Hive

Founded by 5 robot enthusiast engineers in 2011, HG Robotics is specialized in tailoring robots and autonomous solutions with aim to be the most trusted robots solutions providers in Thailand.

2011

- Founded by RoboCup world championships team



2015

- Flare Stack Inspections Unmanned Aerial Vehicle (UAV) for Siam Cement Group (SCG)



2017

- Autonomous Surface Vehicle (ASV) for Mae-Kong river and coastal patrol project “ROBAST” for Royal Thai Navy



Currently become a hive of more than 30 country’s best engineers providing customized robotics solutions to top tier companies in Thailand



2014

- 6-meter wingspan UAV prototype for Royal Thai Air Force (RTAF)
- Autonomous Underwater Vehicle (AUV) for PTT Exploration and Production (PTTEP) for offshore petroleum exploration

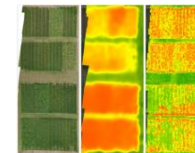


2016

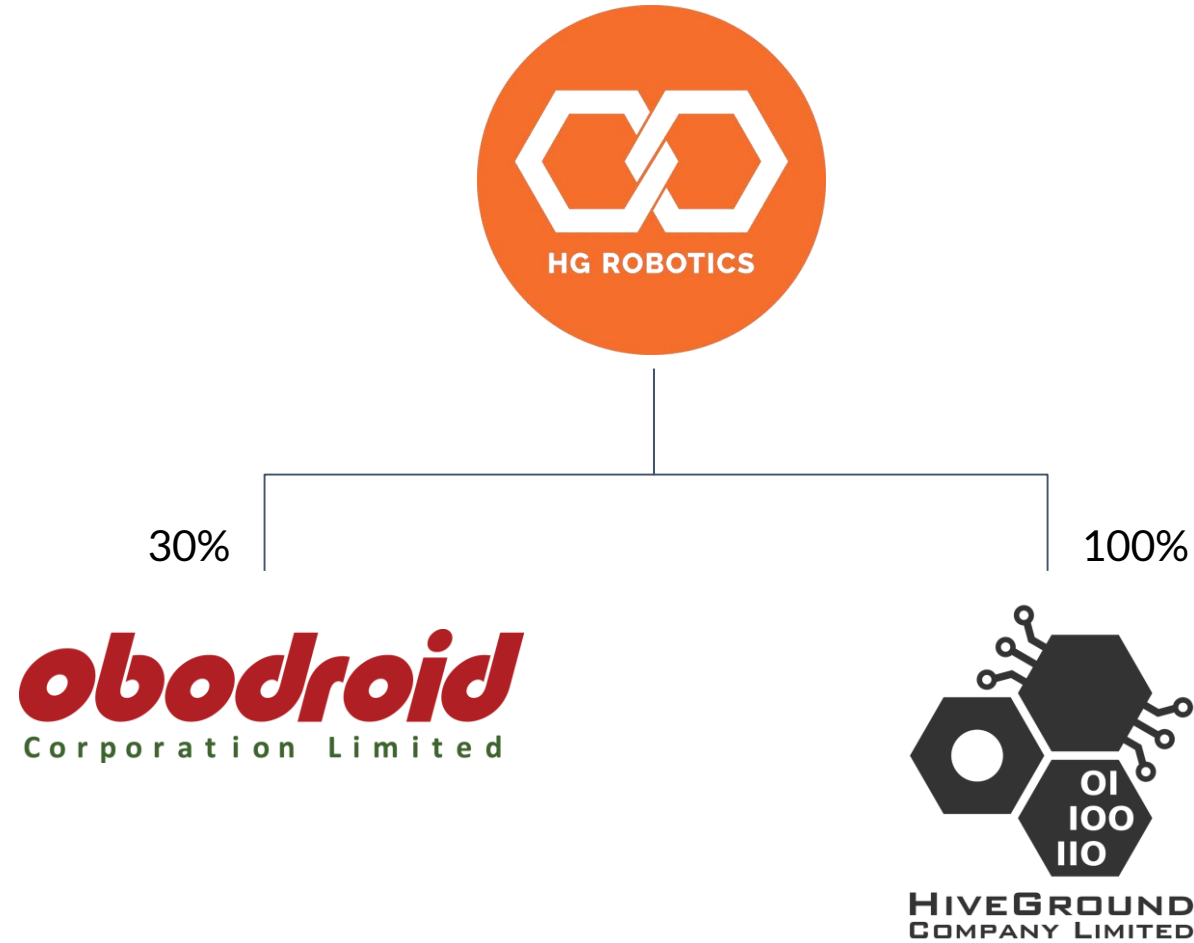
- Attract THB10M investment from SMEs Private Equity Trust Fund – a fund by Government Saving Bank (GSB) and Stock Exchange of Thailand (SET) which has investment aim in high potential and national strategic start-up companies

2018

- Residential & Security Robots for Magnolia Quality Development Corporation Limited (MQDC)
- Unmanned Aerial System with Multi-spectral camera payload for Khon Kean University study of Commercial Cane Sugar (CCS) Prediction in sugarcane field (Ongoing Research)



Who We Are – Group Structure



Note:

- All founders and investors are at HGR
- The remaining of Obodroid is held by MQDC's subsidiaries

What We Do

Agricultural | Industrial | Residential

What We Do – Full Spectrum of Robot and Automation Services



We offer wide range of customized unmanned systems. Our product application span across various industries including ...

Agricultural

Unmanned Aerial Platform

- Agricultural spraying drone
- Plantation and yield surveying drone
- Generic mapping
- Crop disease and irrigation management

Management System

- HiveGround Mission Control (HGMC) provides a worry-free drone mission planning and flight monitoring.



Industrial

Limitless application by customized unmanned vehicles

Oil and Gas

- Flare stack inspection
- Underwater pipeline inspection

Military

- Aerial patrol
- Waterway and coastal patrol

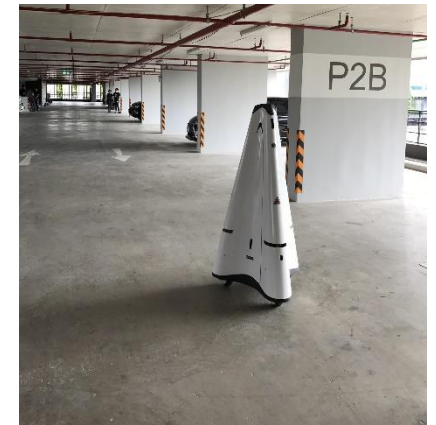
Others

- Stockpile volume measurement



Residential

- Human interaction robots
- Residential security robots



What We Do - Agricultural Solutions

Tiger Drone

Tiger Drone is a multi-rotors, fully autonomous, highly efficient drone for agricultural spraying operation.

Features and benefits:

- Fully autonomous flight via HGMC
- Accurate spraying to target area with no crops damage from human field walk
- Highly efficient with tailored payload according to requirement

Specification

Dimension (cm)	105.5 x 105.5 x 80
FrameArm Length (cm)	178
Propeller Diameter	22 Inch, X8 configuration
Weight	13 kg
Operating Speed	3-6 m/s (10-21 km/hr)
Spraying Speed	1 L/min
Hovering Time	15 min
Payload	10 L



What We Do - Agricultural Solutions

VTOL Fixed Wing Drone

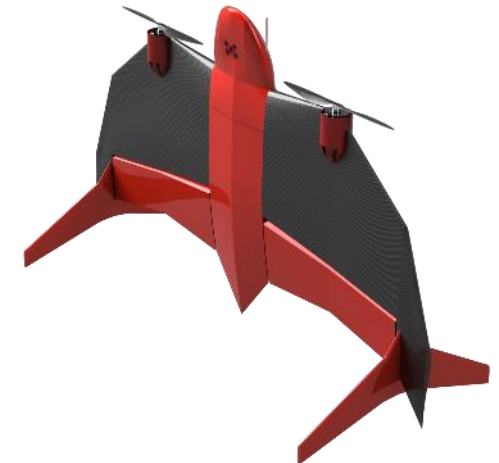
VTOL Fixed Wing Survey Drone has wide area mapping capability which is suitable for optimum route planning and crop health monitoring.

Features and benefits:

- Fully autonomous flight via HGMC
- Vertical take off and landing
- Light weight and conveniently portable
- High efficiency platform for large area surveying

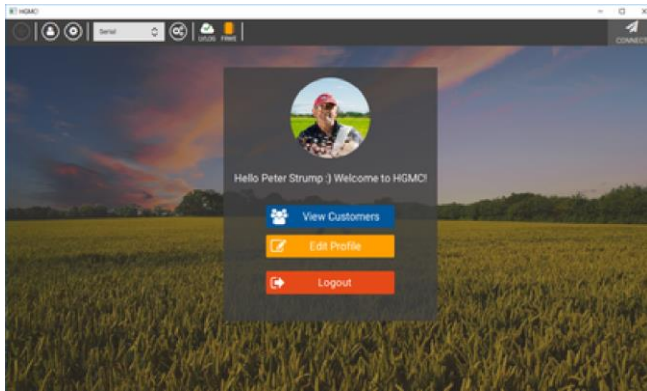
Specification

Dimension (cm)	W130 x L81 x H56
Max Takeoff Weight	4.2 kg
Max Payload Weight	500g.
Max Cruising Speed	90 km/h
Max Altitude	800 m
Max Operating Radius	10 km
Max Wind Resistance	Forward Flight : 36 km/h Hover Flight : 14.8 km/h
Max Flight Time	62 min

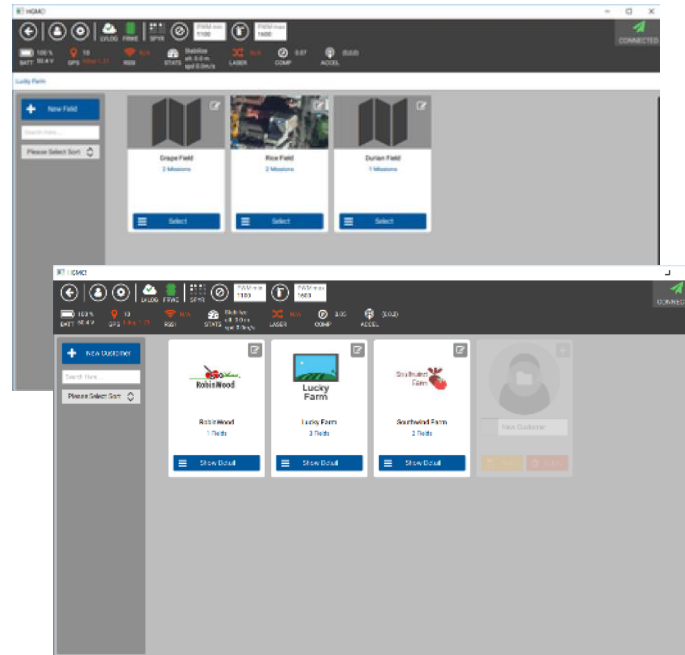


What We Do - Agricultural Solutions

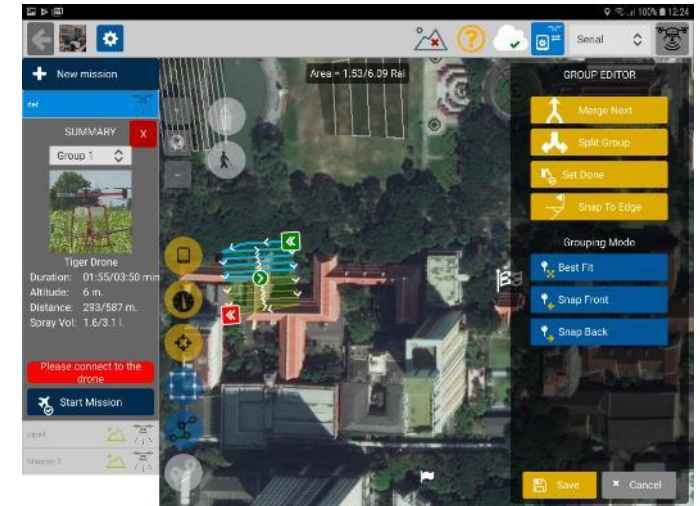
HiveGround Mission Control (HGMC) is an in-house developed software to facilitate drone mission planning and flight monitoring. It enables users to manage their UAV flight plan, parameters and provide flight data logging for real-time monitoring and future investigation.



Users can log in to their account via log in page



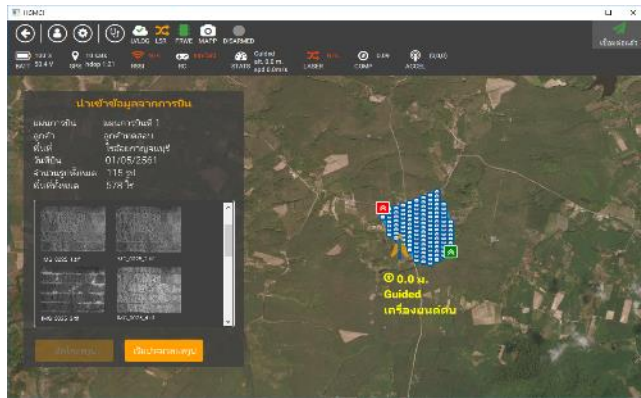
Field works, flights and customers data will appear for selection



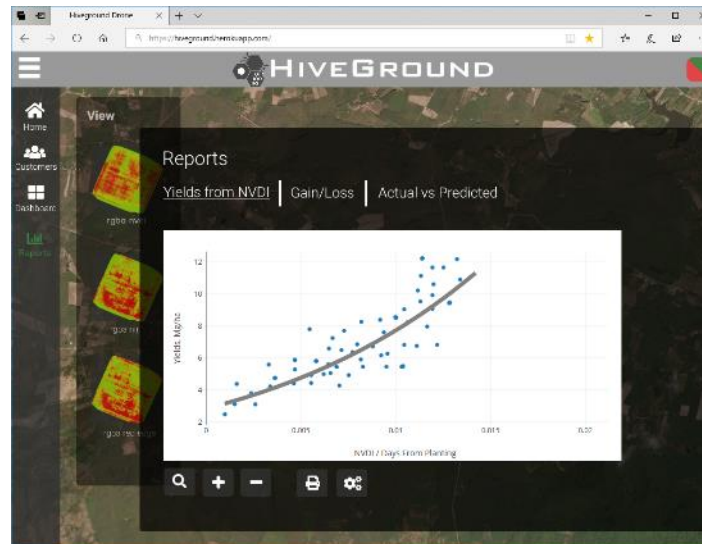
Users can set flight area and desired parameter. Flight path will be automatically generated

What We Do - Agricultural Solutions

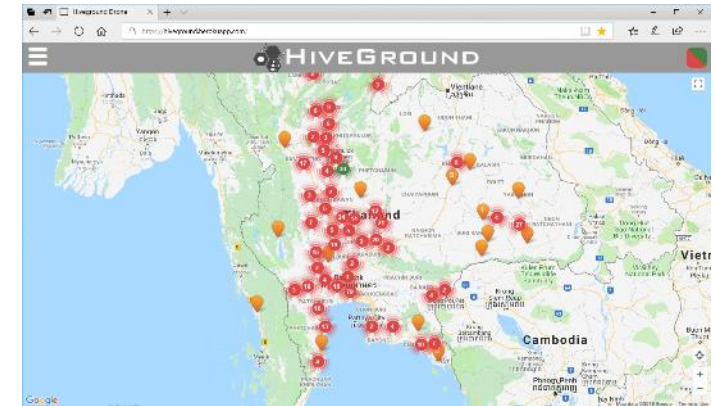
HiveGround Mission Control (HGMC) is an in-house developed software to facilitate drone mission planning and flight monitoring. It enables users to manage their UAV flight plan, parameters and provide flight data logging for real-time monitoring and future investigation.



HGMC processes flight data and automatically upload pictures and generate online NVDI mapping in to cloud repository.



Reports such as crop yield prediction, sugar ccs content, potential diseases can be generated to support decision making.



Reports and detailed flight history can be access real time through website and mobile application.

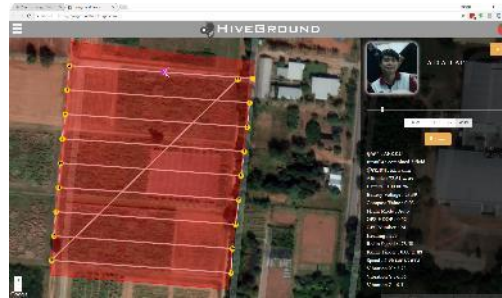
What We Do - Agricultural Solutions

Example Case: Commercial Cane Sugar (CCS) Prediction in sugarcane field (Ongoing Research)

Equipped with multi-spectral camera, our drone can deliver wide coverage plantation mapping to enhance CCS calculation accuracy.



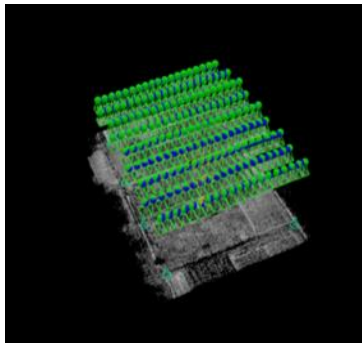
Six-rotor VESPA drone with RedEdge multi-spectrum payload



Automatically generated flight program via HGMC



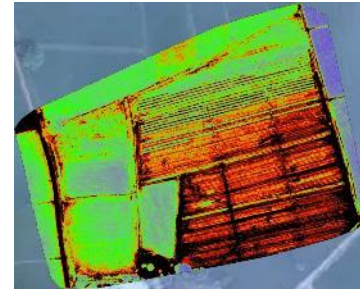
Ground control point panel and calibrate equipment to ensure consistent data collection for processing



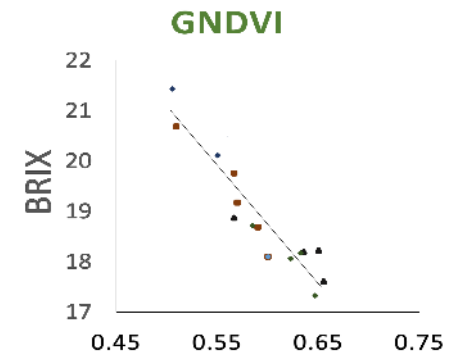
Reference image mapping



Original map



Multi-spectrum map



Brix model result

Processed map to generate vegetation index to be used as input in CCS prediction model

What We Do – Industrial Solutions



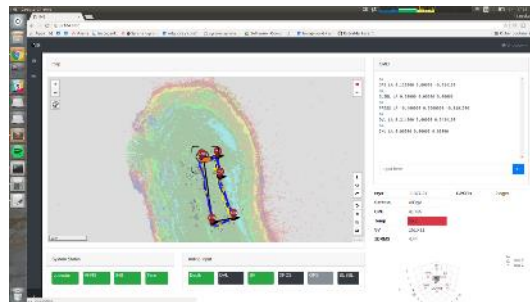
Inspection Drone

Dimension (cm)	65 x 63 x 22
Max Speed	28 m/s
Flight time	22 min
Max Altitude	800 m
Operating radius	800 m
Weight	2.501 kg
Max Payload Weight	500 g.

RTAF Tiger Shark III UAV

Dimension	6 m wingspan
Max Speed	150 km/h
Flight time	Up to 8 hours
Max Altitude	12,000 feet
Operating radius	150 km
Weight	180 kg max take off weight
Max Payload Weight	20 kg.

What We Do – Industrial Solutions



From Left:
1. ROAST ASV
2. Video antenna and monitor



From Left:
1. 3-Axis Gimbal with EO camera
2. Picture taken by ROAST at 10x zoom from 200 meters range

Autonomous Underwater Vehicle (AUV) for pipeline inspection

Dimension (m)	Approx. 3 x 2 m
Operating Depth	Up to 200 m
Operating Range	Up to 100 km without GPS

ROAST : Autonomous Surface Vehicle (ASV)

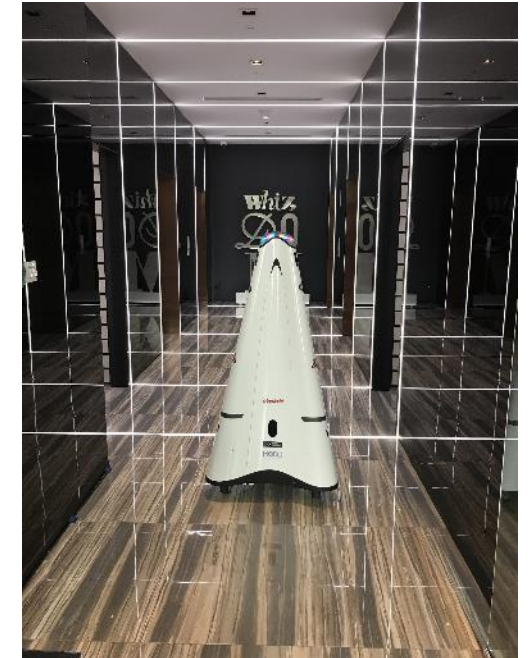
Dimension (m)	W 1.5 x L 6 x H 0.8
Max Speed	20 knot
Max cruise range (at 12 knot)	60 nm

What We Do – Residential Solutions

HG Robotics group, in partnership with Magnolia Quality Development Corporation Limited (MQDC), has joined hands to develop artificial intelligence robots and control system for residential projects.

SR-1 (Security Robot)

Dimension (mm)	H 1500 x W 750 x L 750
Weight	80 kg
Functions	Patrolling with surrounding view camera Emergency call with two-way communication Web UI for real time monitoring 4 hours non stop operating per charge * Autonomous docking system for self recharging
Advance AI Features	Face, pose and appearance detection License plate recognition <ul style="list-style-type: none">• Behavior Tracking• Anomalies Detection

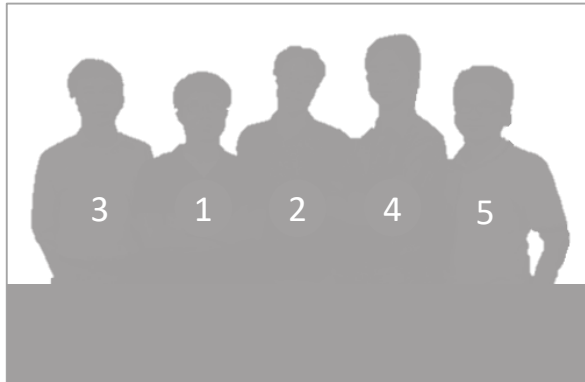
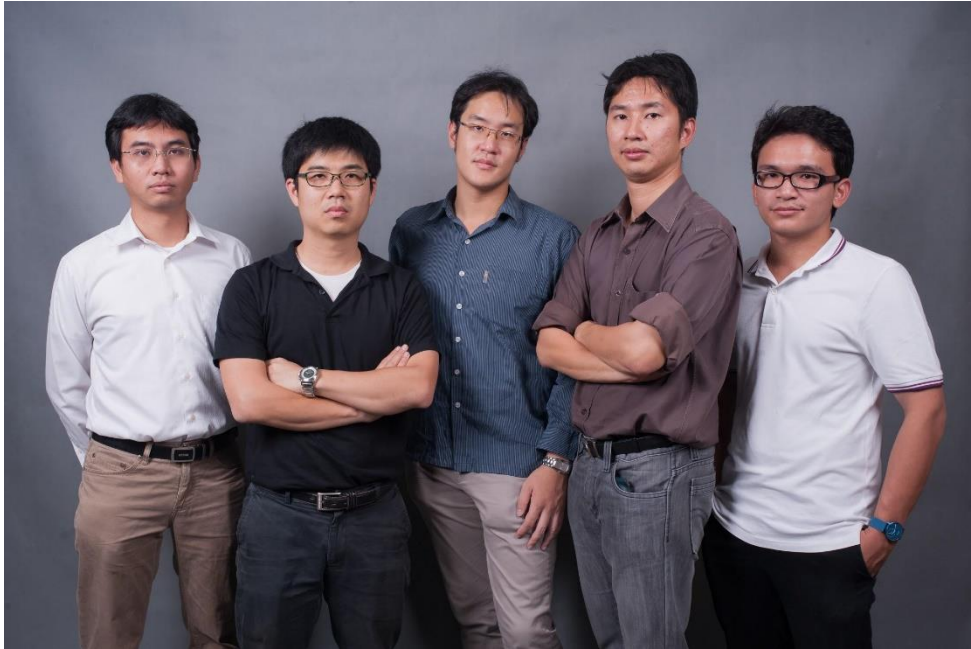


HGR Team

Robot Enthusiasts | Country's Top Talents | World Class Standard

We are proud of the knowledge and experience we have in house. We have numerous PhD graduates and specialists in robotics, artificial intelligence and adjoining professional fields working for us in multidisciplinary teams.

Founders / Management Team



1. Mahisorn Wongphati

CEO

Ph.D., Robotics, Keio University Japan

M.Eng. Computer, Chulalongkorn University, Thailand

B.Eng. Computer Engineering, Chulalongkorn University, Thailand

2. Pasu Boonvisut

Senior Engineer

Ph.D., System and Control Engineering, Case Western Reserve University, USA

M.Eng. Electrical Engineering, Chulalongkorn University, Thailand

B.Eng. Electrical Engineering, Chulalongkorn University, Thailand

3. Sirichai Pornsarayouth

Electrical Engineer

Ph.D., Mechanical and Control Engineering, Tokyo Institute of Technology, Japan

M.Eng., Electrical Engineering Chulalongkorn University, Thailand

B.Eng. Electrical Engineering, Chulalongkorn University, Thailand

4. Kamol Chuengsatiansup

Mechanical Engineer

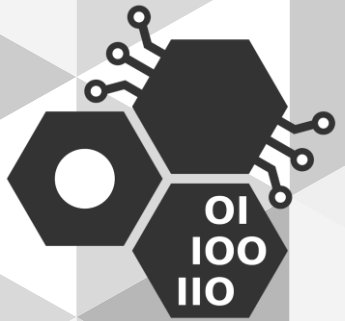
M.Sc., Mechanical Engineering, Carnegie Mellon University, USA

B.Eng, Mechanical Engineering, Chulalongkorn University, Thailand

5. Kuankhajohn Kuanliang

Senior Design Engineer

B.Eng. Mechanical Engineering, Chulalongkorn University, Thailand



HIVEGROUND
COMPANY LIMITED

obodroid
Corporation Limited



Our Clients

