#### SHAPING INTELLIGENCE KEET AIOT. TOUCH THE FUTURE.



# Secure Renewable Energy Solar Farm Case Study

- Top 50 Global Thought Leaders and Influencers in 2022 by Thinkers360
- Lead, developed, and scaled more than 50 products projects on an international scale, Focused on MENA & SEA region
- Graduated in ICT engineering & Data Management
- Robotic & Aerial Robotics Specialist



#### Head of IT, Integrated Technology and Innovation





#### Hadi Ganjineh









#### **PART 01** Super Energy Corp Story

#### **PART 02** LocNinh Solar Farm Case Study







# Super Energy Corp Story



#### Super Energy Thailand 01

Established in Thailand in 1994, listed on the Stock Exchange of Thailand (SET) since 2005.

#### Super Energy Vietnam 02

In 2017, Super Energy Corporation expanded its investment in Vietnam's green energy industry, namely, wind power and solar power.

Super Energy Vietnam has developed 9 solar power projects and **5** wind power projects, contributing to an increase in the renewable energy share of Vietnam.



1 project : in operation (VN) 4 projects : under development

#### 141 Projects

inclusion of projects under development

#### What we do?

#### Total capacity in MW by percentage



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: under development



#### Ensuring the reliable and safe operation of the nation's electrical grid is critical for economy as well as national security.

Solar and Wind farms are a subset of the nation's Energy Sector, which means they are part of the nation's critical infrastructure and need to be protected to prevent downtime and service outages for thousands of customers who rely on the grid for power.

# **Renewable Energy Growth and Surveillance Risks**

Early warning of potential threats such as vandalism and theft

Digitalized video surveillance solutions with AI analytics

24/7 and remotely operation in all weathers

Integration with other systems







#### LOCNINH 1 SOLAR PLANT 200 MW Vietnam



# LocNinhSolar Plant Total 550MW

#### LOCNINH 2 SOLAR PLANT 200 MW Vietnam



#### LOCNINH 3 SOLAR PLANT 150 MW Vietnam





## **Design Layout LN1:**

- Thermal Camera: 25 units
- Thermal Smart Linkage Tracking: 2 units
- Camera in Power Transmission line: 1 unit
- Camera in gate: 3 units
- Camera for Inverters: 60 units

## LocNinhSolar Plant





#### **Design Layout LN2:**

- Thermal Camera: 27 units
- Thermal Smart Linkage Tracking: 0 units
- Camera in gate: Share with LN1
- Camera for Inverters: 60 units

### LocNinhSolar Plant





## **Design Layout LN3:**

- Thermal Camera: 26 units
- Thermal Smart Linkage Tracking: 4 units
- Camera in Power Transmission line: 1 unit
- Camera in gate: 3 units
- Camera for Inverters: 40 units

### LocNinh Solar Plant



# **User Drone for Land Survey Orthomosaic** Map

# LocNinhSolar Plant













# LocNinh Solar Plant

# Layout and Digital Surface Model (DSM)







- 384\*288, 640\*512 thermal resolution 10/15/25/35mm thermal lens
- 4MP optical lens
- detection/Region entrance/Region exiting;
- VCA: Line crossing/Intrusion Human/vehicle classification
- False alarm reducing

### Solution

### **Camera Selection**



- 384\*288, 640\*512 resolution
- 50/75/100mm thermal lens
- VCA: Line crossing/Intrusion detection/Region entrance/Region exiting
- Up to 1km behavioral analysis for human
- Human/vehicle classification
- False alarm reducing

# HIKVISION®



- 384\*288 thermal resolution
- NETD <= 40mK</p>
- 15/25/35mm thermal lens
- Up to 350m behavioral analysis for human
- Master-slave linkage rules: intrusion detection, line crossing detection



#### Solution

# **Range Comparison**

#### Thermal in Day and Night = 400 m

Optical in Day = 80 mOptical in Night = 50 m

Optical Day = 80m Optical Night = 50m











# Solution

# **Pole And Speaker**











# **Hikvision VMS**

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CONTRACTOR INTERVIEW	DOC NINE2 INTRASTRUCTURE SYLEM	DATE: APRIL 2021	









### Thermal Video Content Analytics (VCA)

TargetSize:56\*116 MaxSize:82\*190 MinSize:36\*85





# **Border Perimeter Defense**





