



# INTEGRATING MARITIME WORKPLACE SAFETY AND EFFICIENCY WITH AN IOT TRACKING PLATFORM

Tagvance is an Internet of Things (IoT) innovation start-up specialised in developing realistic and reliable location tracking and monitoring solutions to enhance operational efficiency, capacity utilisation and safety of movable assets (workforce and vehicle).

Founded 2017,  
Singapore

**Can Kiral**

Co-founder

**Olivia Chen**

Co-founder

**Hosam Herzallah**

Co-founder



PIER71 is great for founders who want to validate their ideas and find the product-market fit in the maritime industry. We are so thankful for having been given this opportunity to identify the most pervasive problems in the industry by engaging with mentors, industry expertise, etc.

**Can Kiral,**  
Co-founder

## The Journey So Far

The devastating 'Soma' mine disaster in 2014 led the Turkish government to introduce a new safety regulation that requires operators to monitor headcounts and real-time locations of miners working underground at all times. As an IT Industrial Engineer with 25 years in telecommunications, Can Kiral saw an opportunity to come up with a tracking system that operates primarily on BlueTooth and LoRa (long range) radio frequencies, ideal for both outdoor and indoor. This led to the birth of Tagvance. Can identified similar issues in the maritime industry and believed that workforce tracking is one of the largest unaddressed issues that could potentially affect operational efficiency and work safety.

As one of the Smart Port Challenge 2018 finalists, Tagvance was able to find their product-market fit through active engagement and networking with maritime corporates, mentors and other industry experts. The S\$50,000 grant from the Maritime and Port Authority of Singapore (MPA) allowed them to procure equipment and resources to support their pilot projects with PIER71's corporate partners Jurong Port and Keppel Shipyard. In less than 2 years, they have received wide recognition for their remarkable and innovative solutions, having been awarded twice consecutively by BCA/Enterprise Singapore for their industrial Workforce Tracking Technology. They are now working with MPA to introduce an IoT monitoring system to ensure proper usage of designated buoys for craft mooring.

## Innovation Opportunity

Monitoring moveable assets indoors and in confined spaces is a challenge, particularly in industrial areas where visibility is impeded by obstacles. This lack of transparency can have a negative impact on work safety and operational efficiency, leading to widespread accidents, occupational disease, and under-utilised assets in places like ports, ship building facilities and industrial terminals.

## Solution

Tagvance's software identifies, locates and monitors action in high traffic areas through the use of specially programmed tags. This provides the location of people and assets with high precision and in real-time. In addition to positioning data, it can also relay environmental sensor data to give greater visibility of what is happening at the specific location. This allows operators to determine any high-risk equipment and environment, and make decisions that improve safety, efficiency and effectiveness of maritime operations.

## Pilot Project Key Results

From the pilot project with Jurong Port and Keppel Shipyard, the tracking platform has proven to be reliable in terms of response time and position precision, both indoors and outdoors including semi-confined spaces.

"After the initial promising demo, we decided to prepare the full site to test the tracking of forklifts and light vessels at Jurong Port. The system surprisingly demonstrated to penetrate every corner of our extensive space producing reliable location positioning results within an affordable budget."

**Sam Wei Hoong**  
Vice-President, Jurong Port



Saving up to  
S\$5.3 million  
annually for site



Reducing daily  
manpower and  
vehicle accountability  
by 4 hrs per person  
and 2 hrs per vehicle

## Looking Forward

Tagvance is continuing to look for new opportunities to expand within construction, mining and marine offshore. They have started to integrate game engine and machine learning into their backend to make the best use of real-time positioning & IoT sensor data and provide a 3-dimensional view of the industrial environment.

TAGVANCE

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