

RADAR EXTRACTOR AND TRACKER

Extend the Possibilities of Your Radar



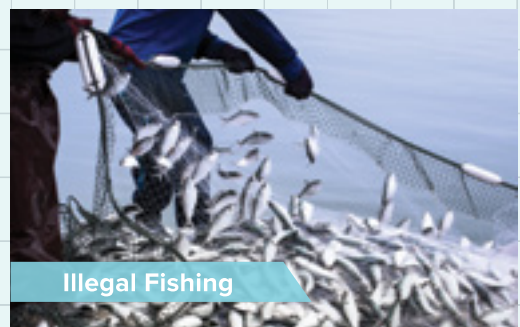
INTRODUCTION

Through smart tracking and seamless detection of our Radar Extractor and Tracker, we are dedicated with a deep sense of purpose to enhance maritime security in real-time, maximise surveillance capabilities and increase operational efficiencies.

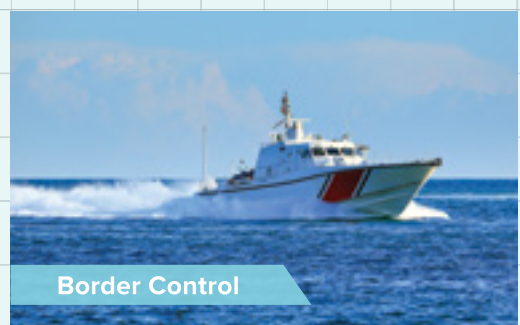


ABOUT Radar Extractor and Tracker

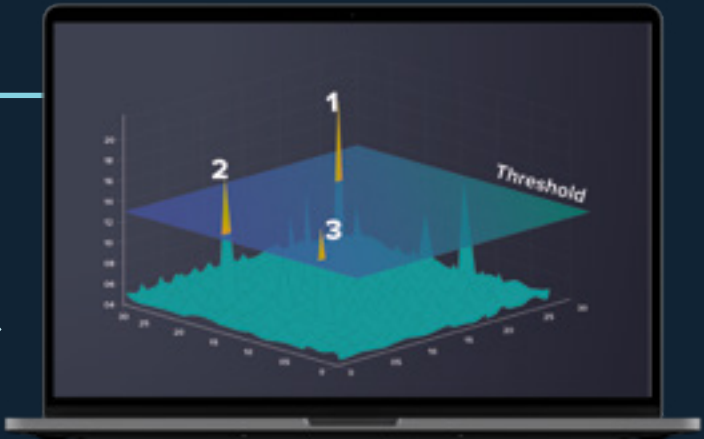
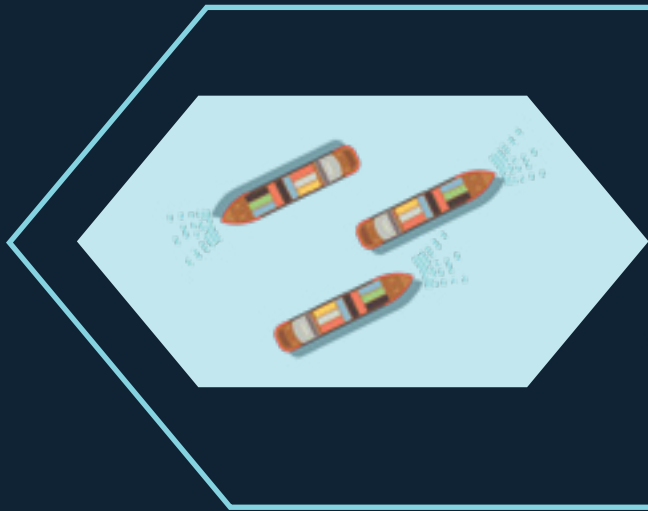
Radar Extractor and Tracker enhances conventional radar systems to detect and track small and mission-critical targets, ranging from swimmers and small boats to speed boats and large vessels. The solution sharpens coastal surveillance capabilities through expanding radars' sensitivities, generating high confidence tracks in several formats to cater to requirements of maritime authorities. The monitoring range is widened by integrating offshore radars with coastal radars to have a complete surveillance picture. With this radar enhancement technology, authorities could tackle the ever-evolving challenges of illegal maritime activities such as human trafficking, drug smuggling, illegal fishing and even terrorism.



Illegal Fishing



Border Control



CONVENTIONAL RADAR TRACKER

Constant False Alarm Rate (CFAR) Detection Threshold:
Only big targets are detected



TRACK-BEFORE-DETECT RADAR TRACKER

Unthresholded Track-Before-Detect (TBD):
Both big and small targets are detected



HOW IT WORKS

The Radar Extractor and Tracker uses advanced Track-Before-Detect (TBD) algorithms and behavioural analysis to acquire specified targets. TBD analyses target movements against random noise using multiple scans technique, achieving track maintainability with high accuracy. Behavioural analysis maintains a very low false alarm rate, only sniffing out suspicious activities. The system requires minimal customisations on commercial coastal and navigational radars for upgrading detection performance. Dynamic Programming is applied to enhance the efficiency and effectiveness of our detection algorithm.

Track-Before-Detect (TBD)

Our approach to detect and track low observable targets

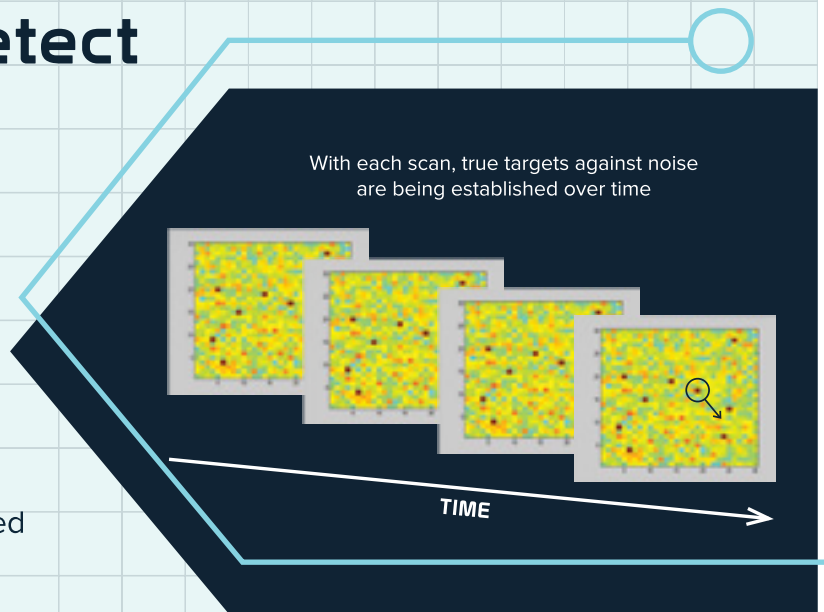
The tracking process can be classified into two parts:

I) Track Initiation

TBD tracks targets based on historical profiles, establishing high fidelity tracks to be shown on display.

(II) Track Maintenance

Track Maintenance carries out recursive track state estimation from the current known state to achieve confident track association and co-relation.



SYSTEM CONFIGURATION



Coastal /
Navigational Radar



Radar Extractor
& Tracker

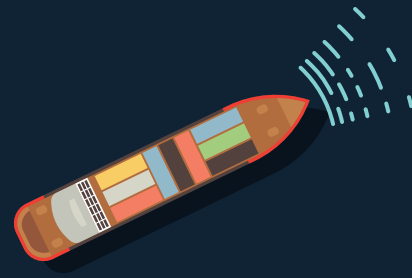


Radar
Display



PTZ or
Day/Night Camera

FEATURES



- Detects Low Radar Cross-Section (RCS) targets even in heavily cluttered environments without compromising false detections
- Compatible with most commercial coastal and navigational radars
- Automatic track initiation with the ability to track and process 1000 targets at a time
- Improves detection of small targets, buoys and manoeuvring targets with RCS of 0.5 sqm
- Low false alarm using behavioural recognition pattern
- High Track Maintainability – Users can track target both on display and using a EO camera
- Track Accuracy (Heading, Speed and Position)
- PC-Based Control and Display Unit



Enhance maritime situational awareness with support of Command and Control (C2) systems integration

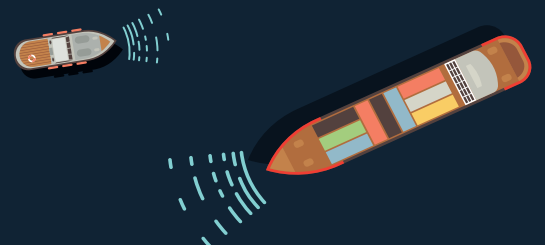


High target detection rate, suitable for night missions with addition of night vision cameras



Increase operational efficiencies and optimising resources

/BENEFITS



www.stengg.com
digitalsystems@stengg.com

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