

— AUGMENTED MARITIME AWARENESS

At sea, you cannot afford to look down.

AMA replaces head-down radar and scattered 2D dashboards with a single, head-up, horizon-locked AR view of the sea — fusing live AIS, GPS, ADS-B, ECDIS and radar into a stabilised 3D picture projected directly into the watch officer's field of view.



AMA

— WHAT AMA IS

A real-time AR/MR navigation system that turns the bridge's fragmented 2D streams into *a single coherent picture, projected onto the horizon itself.*

AMA is built for the watch officer. Live AIS, GPS, ADS-B, ECDIS and radar feeds are fused on the vessel and rendered as horizon-locked AR — vessel boxes, distance, CPA risk and ship data anchored to real targets even when fog or darkness hides them. Eyes never leave the sea.

It is deployed entirely on-vessel — receive-only RF ingress (Sat-AIS, ADS-B, NavIC / GPS), no outbound telemetry, no cloud dependency — and is built, owned and serviced by IDEA Foundation, an Indian deep-tech engineering organisation. This brochure sets out what AMA does, where it deploys, and what it changes for the people on watch.

CONTENTS

01	The Problem	03
02	The System	04
03	The Bridge View	05
04	Core Capabilities	06
05	Predictive Encounter Analysis	07
06	Jurisdictional & Data Integrity	08
07	Where It Is Used	09
08	Strategic Value	10
09	Components	11
10	Security & Sovereignty	12
11	About IDEA Foundation	13

— THE PROBLEM

Watch officers shouldn't have to mentally fuse 2D screens into 3D reality.

Today's bridge is a wall of disconnected displays — radar, AIS, ECDIS, paper charts. Watch officers integrate them in their head while the ship rolls and time presses. The result: cognitive load that shrinks reaction time when it matters most.

01 Cognitive overload

Monitoring radar, AIS, ECDIS and paper charts while managing helm, engine and crew exceeds human attentional capacity in high-traffic and low-visibility conditions.

02 Head-down screen time

Every second a watch officer looks at a radar screen instead of the sea is a second of degraded situational awareness — exactly when the risk of collision is highest.

03 Delayed encounter recognition

CPA calculations done mentally or from 2D radar are too slow for fast-closure scenarios. By the time the officer recognises a dangerous encounter, reaction time has already shrunk.

04 Non-AIS contact blindness

Electronically silent vessels — fishing boats, small craft, non-compliant contacts — are invisible to AIS-only systems until radar picks them up, often too late in congested waters.

05 Night and fog degradation

In zero-visibility conditions the visual reference layer is lost — the officer is forced to navigate by instruments alone with no intuitive spatial picture of what surrounds the ship.

06 Junior officer vulnerability

Less-experienced watch officers lack the "sea sense" — pattern recognition built over years — that lets veterans instinctively read encounters. Current tools don't transfer that expertise.

Humans need to **see**, not interpret. AMA closes that gap.

— WHAT AMA IS

A single, head-up, horizon-locked AR view of the sea.

AMA fuses every navigation feed — AIS, GPS, ADS-B, ECDIS, radar — into a stabilised 3D picture geospatially locked to the real horizon. The bridge crew watches the sea, not the screens.

Sense

1

Live AIS, GPS, ADS-B, ECDIS and radar feeds are ingested in real time on the vessel — no external connectivity required.

Stabilise

2

Ship roll, pitch and heading are compensated continuously. Overlays stay locked to real targets, not to the headset.

Project

3

Vessel boxes, distance, CPA risk, ship data and chart context are rendered as horizon-locked AR — projected into the watch officer's field of view.

Predict

4

CPA/TCPA, ghost positions and collision cones are computed continuously — flagging developing risk seconds before a 2D radar would surface it.

5+

Data feeds fused

24/7

Horizon-locked watch

Zero

Head-down screen time

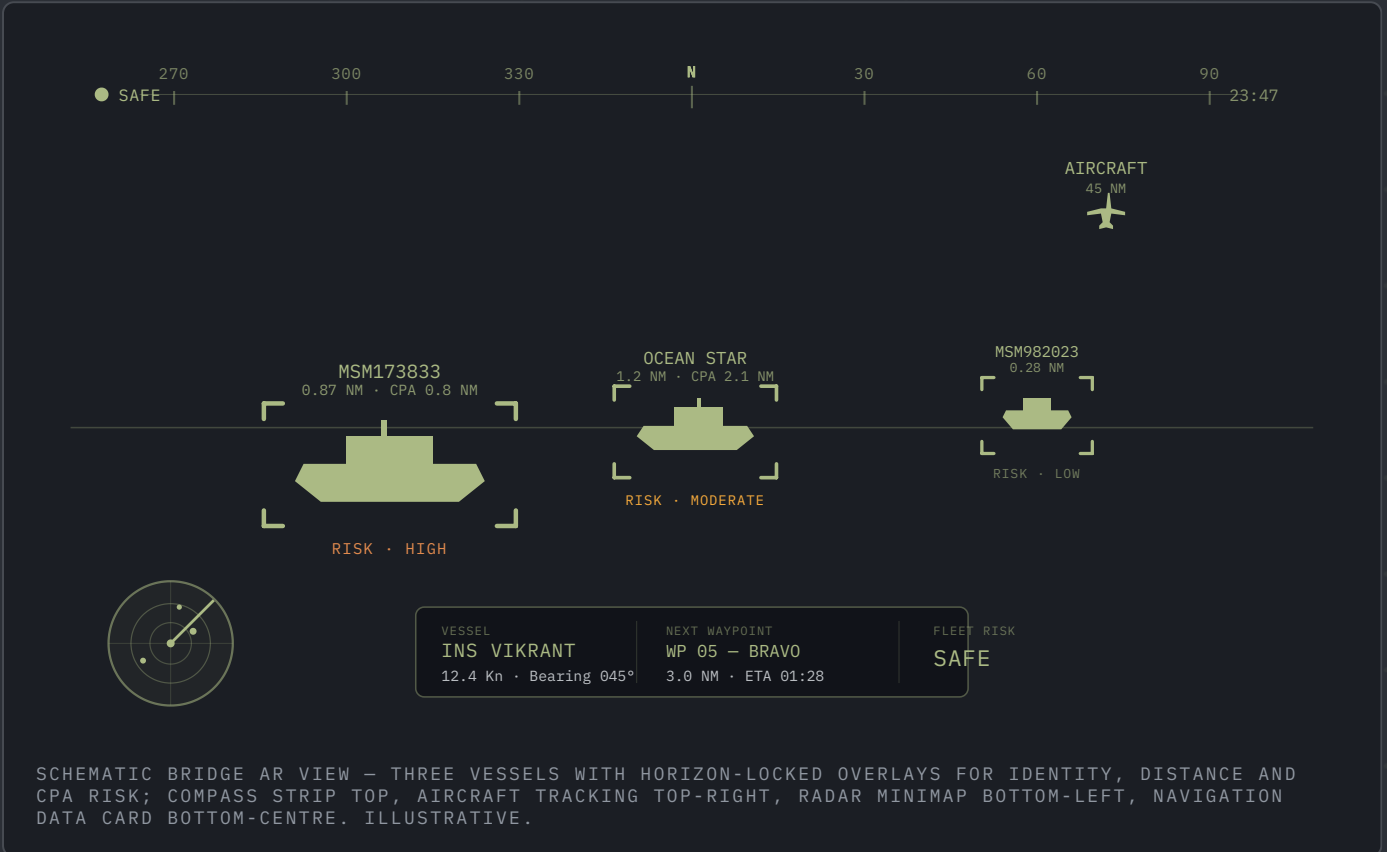
100%

On-vessel sovereign

THE BRIDGE VIEW

What the watch officer actually sees.

Horizon-locked AR overlays anchor every vessel — name, distance and CPA risk — to its real position in the world. Eyes never leave the sea.



CORE CAPABILITIES

What the watch officer sees, hears and trusts.

Eight core capabilities cover every layer of the bridge picture — from the AR overlay itself to the data feeds beneath it.

AR & OVERLAY

Horizon-Locked AR Overlay

Geospatially accurate 3D vessel boxes locked onto real ships — visible even when fog or darkness hides them.

Live Vessel Data Tags

Distance, bearing, MMSI, vessel type, SOG and COG as floating AR labels above each tracked target.

Compass & Heading Overlay

Stabilised compass rose, true heading and horizon reference projected at eye level — never look down.

Gaze-Based Selection

Select any vessel by gaze or gesture and pull its full data card — hands stay on the helm or binoculars.

DATA & FUSION

Multi-Source Data Fusion

AIS, GPS, ADS-B, ECDIS and radar reconciled into one coherent picture — not separate screens to integrate.

ECDIS & Chart Integration

Electronic chart data, maritime boundaries, waypoints and hazards fused into the AR view over the actual sea.

ADS-B Aircraft Tracking

Aircraft positions rendered in the same view — critical for carrier operations, SAR coordination and naval-air deconfliction.

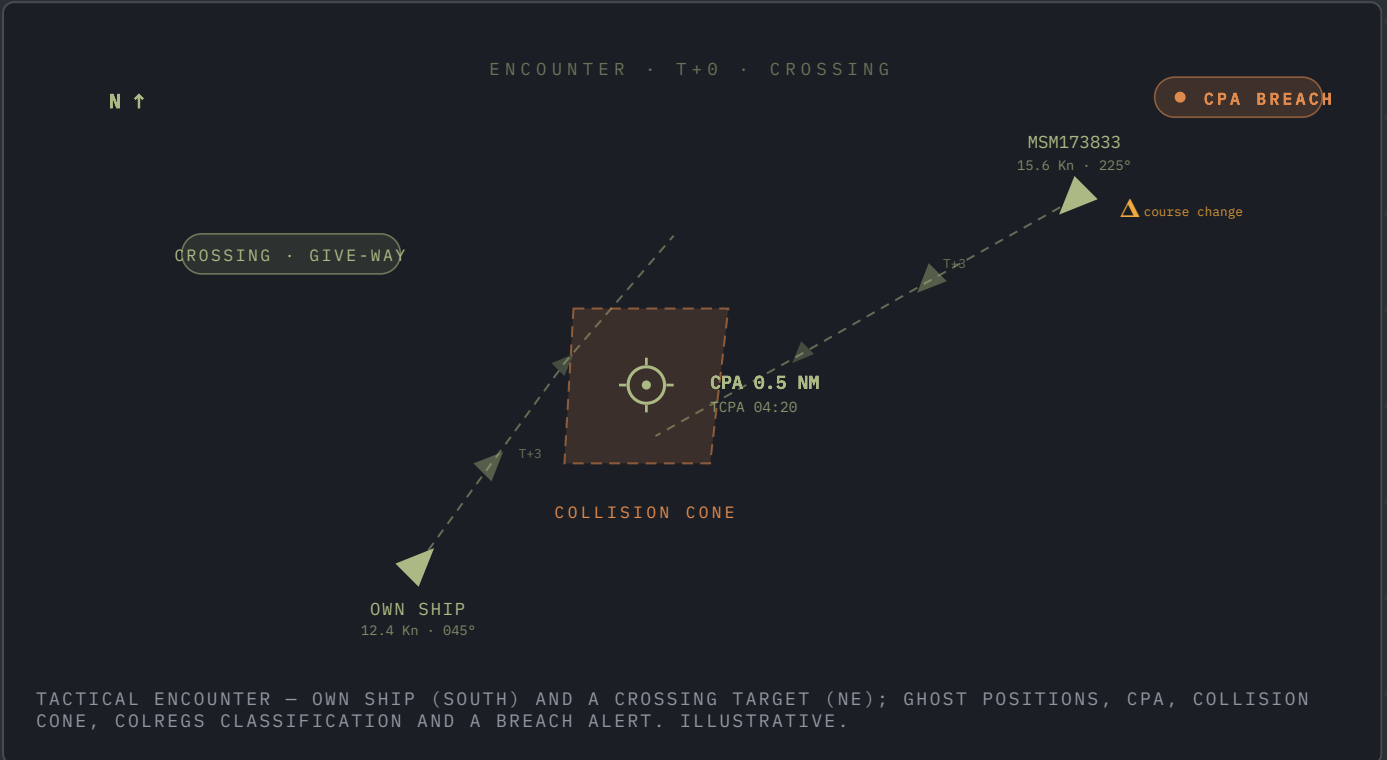
Non-AIS Contact Display

Unidentified radar contacts shown in red — electronically silent vessels remain visible, not invisible gaps.

PREDICTIVE ENCOUNTER ANALYSIS

Act, don't react.

CPA, TCPA, encounter classification and risk projections — all computed continuously, surfaced visually, and stamped on the AR view before any 2D radar would show them.



01 CPA / TCPA Computation

Closest Point of Approach and Time-to-CPA for every tracked vessel, updated with each AIS refresh.

03 Collision Cone Visualisation

Red cones painted onto the water surface — lethal intersection zones, spatially intuitive.

05 CPA Breach Alerts

Priority alerts when CPA drops below threshold — audio, visual and haptic cues, mid-task.

02 Predictive Ghost Positions

Ghosted future positions at user-set time horizons (3–15 min) — see where every ship will be.

04 COLREGs Auto-Classification

Head-on, Crossing Stand-on, Crossing Give-way, Overtaking — classified, rule surfaced instantly.

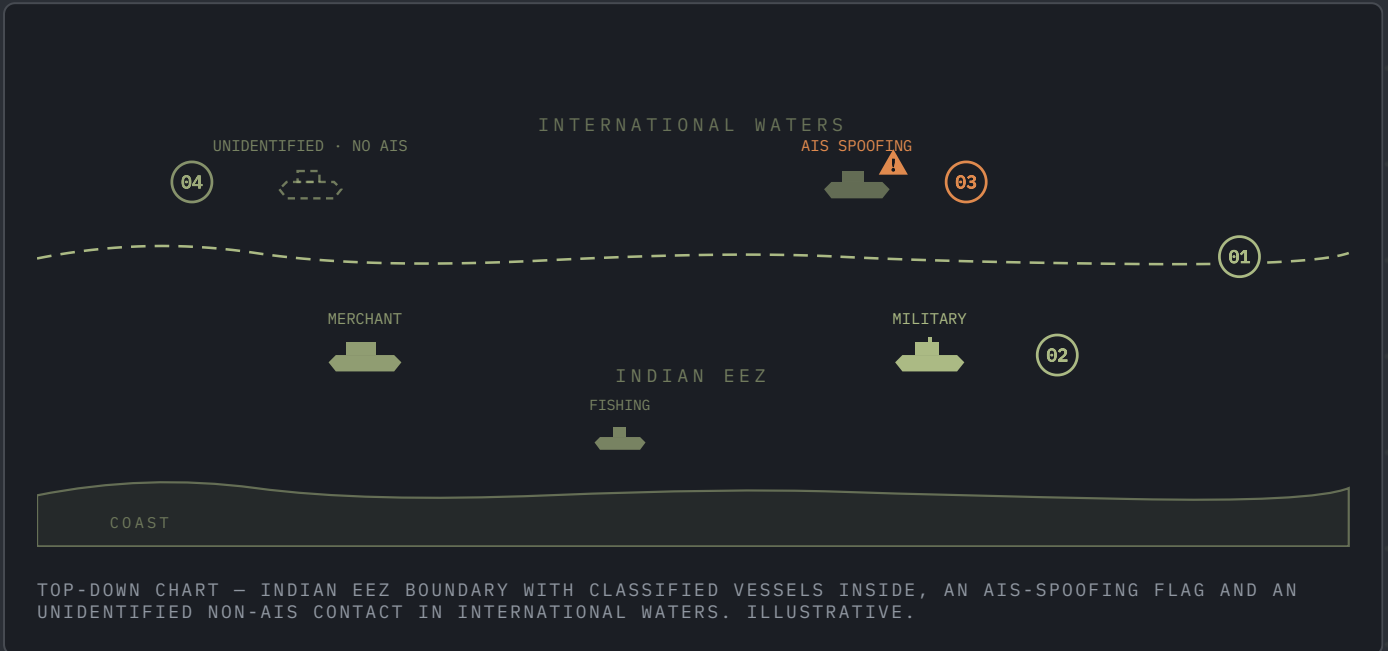
06 Course-Change Detection

Sudden course or speed changes re-compute the encounter and alert immediately.

— JURISDICTIONAL & DATA INTEGRITY

Trust what the picture shows you.

Maritime boundaries, vessel classification, and signal-integrity checks — built into the picture, not consulted separately.



01 Indian EEZ Boundary Overlay

Real-time Indian Exclusive Economic Zone and maritime boundaries rendered in the AR view — jurisdictional context without chart consultation.

02 Vessel Risk Classification

Automatic classification by type and risk — merchant, fishing, military, unknown — with colour-coded differentiation across all targets.

03 AIS Spoofing Detection

Signal-integrity and confidence monitoring flags suspicious AIS behaviour: position jumps, signal gaps, identity anomalies.

04 Silent Contact Placeholders

Non-AIS radar contacts shown as unidentified placeholder markers — electronically silent vessels stay visible to the watch officer.

WHERE IT IS USED

From fleet bridge to coast guard patrol.

AMA deploys wherever the watch officer needs to see the sea — and act on a developing picture.



Indian Navy

Fleet watch keeping, multi-vessel operational picture, carrier deck operations, joint naval-air coordination, EEZ sovereignty monitoring.



Indian Coast Guard

Interception operations, night SAR coordination, AIS spoofing identification, non-compliant vessel detection, coastal patrol.



Maritime Traffic Management

High-density waterway management, pilotage in congested ports and approaches, collision avoidance in restricted channels.



Commercial Shipping

Officer-of-the-Watch collision avoidance, bridge team training, fatigue risk reduction, COLREGs compliance on busy sea lanes.



Port & Coastal Pilotage

Enhanced pilotage in poor visibility, real-time traffic picture during berthing, narrow-channel navigation with AR hazard overlay.



Officer Training

Junior officers gain veteran-level spatial awareness from their first watch — pattern recognition compressed from years into immediate instinct.

— STRATEGIC VALUE

Faster decisions. Fewer collisions. Officers who own the sea.

The system changes more than the bridge view — it changes how a watch is kept.

Minutes → Seconds

Faster Decisions

Officers act on a live spatial picture rather than constructing one mentally from fragments. Reaction time to developing encounters falls from minutes to seconds.

Predict, not react

Reduced Collision Risk

Predictive CPA, collision cones and COLREGs auto-classification remove the primary causes of maritime collision: insufficient time and ambiguous geometry.

Watch the sea, not the screen

Lower Cognitive Fatigue

No constant mental task of fusing 2D displays into 3D reality. Watch-keeping fatigue drops sharply — critical on extended patrols and multi-day operations.

Day-one capable

Accelerated Officer Training

Junior officers gain veteran spatial intuition from their first deployment — the future state of every developing encounter, visible in real time.

One picture, every echelon

True Joint Operations

A unified AR picture, shared across bridge, CIC and fleet ops centres, gives every echelon of command the same situational understanding at once.

Indigenous · Onboard

Atmanirbhar & Deployable Now

Indigenous software stack, on-vessel deployment, no cloud dependency, no external connectivity required. Defence-grade by design.

WHAT'S IN THE DEPLOYMENT

Software, hardware and people — configured to your platform.

AMA is supplied as one complete deployment. The software is ours, the AR/MR headset and on-vessel server are sized to your platform, and our engineers install, train and maintain the system.



SOFTWARE · 01

AMA AR/MR Engine

The fusion engine, the predictive analytics and the AR projection system — all running entirely on-vessel. Our optimised algorithms do the work; the ship keeps the data.



HARDWARE · 02

AR/MR Headset + On-Vessel Server

Qualified AR/MR headsets for the watch officer, paired with a compact on-vessel server sized to your bridge's data load. Mission-grade build.



SUPPORT · 03

Deployment, Training & Maintenance

On-vessel installation, watch-officer training, model updates and ongoing maintenance — for the life of the deployment.

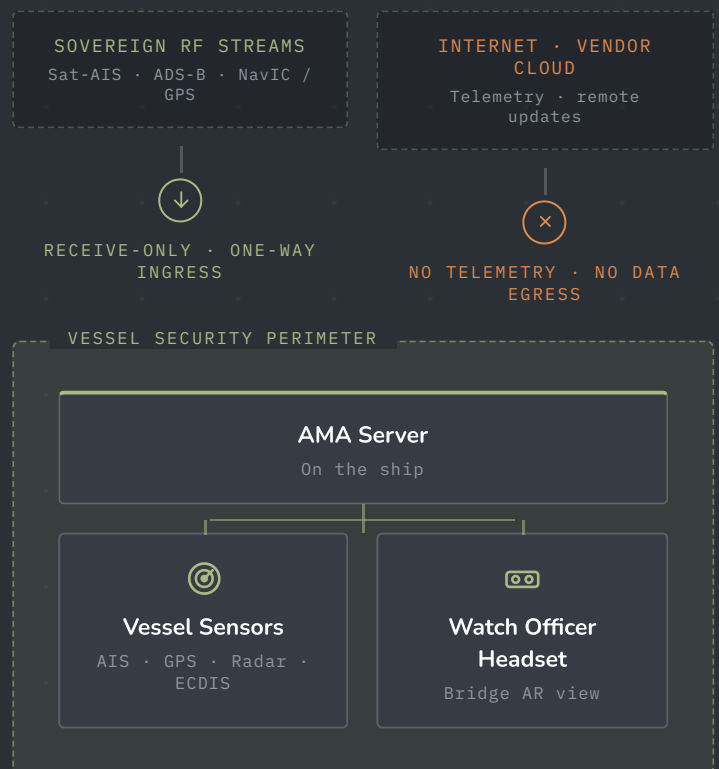
Configuration and pricing on enquiry — sized to platform, bridge complement and data load.

— SECURITY & SOVEREIGNTY

Your ship. Your data. No external dependency.

AMA deploys entirely on-vessel. The system ingests sovereign RF streams — Sat-AIS, ADS-B and NavIC / GPS — one-way through the ship's own antennas. No IP connectivity to the internet or vendor cloud, no telemetry, no software phoning home. A data-diode by architecture, compatible with defence-grade security requirements.

- ✓ On-vessel deployment on the ship's existing infrastructure.
- ✓ Receive-only RF ingress — Sat-AIS, ADS-B and NavIC / GPS via the ship's antennas.
- ✓ IP air-gapped — no internet, vendor cloud or outbound telemetry.
- ✓ Encryption in transit and at rest.
- ✓ Audit-ready event log on the local system.



ABOUT IDEA FOUNDATION

10+ years building deep technology for the people defending the country.

IDEA Foundation is a deep-tech research and engineering organisation based in Panchkula, Haryana. We build artificial intelligence, geospatial, and immersive systems for the Indian Armed Forces and allied agencies — AMA is one of our products.

<p>10+ yrs</p> <p>Cumulative leadership experience building deep-tech systems for defence and government use.</p>	<p>Multi-year</p> <p>Sustained delivery and support of secure, on-premise, and air-gapped systems for defence and government environments.</p>	<p>3 disciplines</p> <p>Artificial intelligence, immersive systems, and geospatial intelligence — engineered in-house.</p>
--	---	---

TRACK RECORD

<p>SECURE DEPLOYMENT</p> <p>Air-Gapped Systems</p> <ul style="list-style-type: none"> On-premise, customer-controlled networks Operation without internet access Tested against adversarial conditions 	<p>DEFENCE & GOVERNMENT</p> <p>Mission-Grade Systems</p> <ul style="list-style-type: none"> Immersive command and planning systems AI surveillance and analytics platforms Geospatial intelligence platforms 	<p>IN SERVICE</p> <p>Long-Term Support</p> <ul style="list-style-type: none"> Maintenance and patch support Multi-year, in-service engagements On-site training and administration
--	--	--

DISCIPLINES

<p>IMMERSIVE</p> <p>Immersive Systems</p> <p>VR and AR/MR environments for planning, rehearsal and real-time situational awareness.</p>	<p>AI / ML</p> <p>Artificial Intelligence</p> <p>Machine learning for command systems, intelligence analysis and real-time surveillance.</p>	<p>GEOSPATIAL</p> <p>Geospatial Intelligence</p> <p>Terrain modelling and satellite-imagery analytics.</p>
--	---	---

Specific programme names and references available under NDA on enquiry.

At sea, you cannot afford to look down.
AMA puts the sea on the horizon — and
keeps it there.

ENQUIRIES

business@ideafoundation.co.in

+91 7087 081 892

www.ideafoundation.co.in

IDEA FOUNDATION

4th Floor, Leap Infratech Building

Plot No. 6, HSIIDC IT Park, Sector 22

Panchkula, Haryana