



Program Objectives: Navy's Need - Produce next-gen AR HMD that can:

- Replace current Navy flight simulator display systems
- Support effective pilot training
- Meet pilot Needs: Lightweight and comfort for extended use
- Be mass-producible
- Find high demand in both Navy and commercial markets

System Specifications: Phase II Prototype

- Display type: Optical see-through (OST) waveguides (Lumus Maximus)
- HMD Style: clip on (HGU-84/P NVG Quick Don Mount)
- Resolution: 2880 x 1440 per eye
- FOV (per eye): AR Overlay 71° x 35° (97° diagonal); OST > 120° x 80°
- Binocular overlap: AR Overlay > 35°; (OST): > 100°
- Visual acuity (arcmin/lp): < 2.95
- Brightness: 2000 nit
- Contrast ratio: > 200:1
- Power consumption: < 15 W
- Cybersecurity: Cert of compliance - non-volatile memory inaccessible
- Weight: < 150 g
- OpenXR Compatible
- Four tracking cameras (1280x800 px)
- Two 6DoF IMUs
- Two POV cameras (1920x1080 resolution)
- Interface: Supports USB-C 3.2 Gen 2 (DisplayPort Alt Mode)
- Audio: 2 mics with noise cancelation, 2 speakers

AR Features: Phase II Prototype

- Real-time rendered out-the-window imagery
- Optical see through (OST) - natural view of cockpit, hands, other pilots/crew, etc.
- Holochip AR SDK
 - Windows and Linux support for IGs and commercial game engines (Unity, Unreal)
 - Inside-out 6DoF tracking with ORBSLAM3 (works in any cockpit)
 - Custom bag-of-words object recognition, AI tailored for simulator cockpits
 - Gesture control

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