Augmented Reality MAINTENANCE AID
ARMA

Simplifying Complex Systems™

UNCLASSIFIED – FOR PUBLIC RELEASE
• Our Mission
  – *Avatar Partners develops innovative solutions that Simplify Complex Systems™ to increase the efficiency, safety and effectiveness of equipment, systems, and processes for the Warfighter*

• Develop Advanced Training Systems and Job Performance Aids
  – Portable Interactive Electronic Publications
  – Interactive Multimedia Instruction
  – Augmented Reality Maintenance & Decision Aids
  – Additive Manufacturing & 3D Scanning
  – Virtual Reality
  – Holographic Reality
Early responses indicate ARMA prototype of Aircraft Electrical System troubleshooting task Reduces Time to Troubleshoot from 4 hours to 30 minutes.

• Hands-Free Training Tool and Field Performance Aid using Augmented Reality

Benefits
• Improves Unit Readiness
• Increases Warfighter Safety
• Reduces Total Ownership Cost
  – Reduces Time to Complete Task up to 90%
  – Reduces Errors to Zero
  – Reduces Time to Train*
• Improves Quality

Boeing / IOWA State Study

Wing Assembly Study of Novice Maintainers

0 Errors

SIMPLE TEXT & GRAPHICS

VIDEO Mode

AUGMENTED REALITY

MDART

ARMA by: AVATAR PARTNERS

Simplifying Complex Systems™
ARMA is used by operators and maintainers to access and interact with aircraft / ship / vehicle specific information including:

- Maintenance Actions
- Troubleshooting
- Part Information
- Controls and Indicators
- Theory of Operation
- Illustrated Parts Breakdown
- Wiring
- Remote Assistance

ARMA overlays on the actual system or on a scaled down training model through the user’s viewing device
Current Pain Points:

- Task requires 3 non-integrated sources - IETM, Wire Illuminator, Schematic
- Tasks to gain access to test points not identified
- Wire Illuminator visuals cause confusion in wiring orientation
- Lack of visuals showing necessary views of connection points
- Time intensive testing
- Strict time constraints!
- Error prone due to misinterpretation of instructions and 2D illustrations
ARMA Features

- One Stop Shop for all troubleshooting and repair
- Hands-Free Field Performance Aid and Training Tool in One
- Component and wiring visuals displayed as 3D overlays on the aircraft
- Color coded and filterable
- Reference additional required maintenance tasks
- Architected to integrate to Procurement
- Provides Maintenance Task Validation
- Supervisor Viewing in Real-Time
ARMA Technology Summary

• High Fidelity & Precision
  – Object Tracking - No Marker Required
  – Solution for AR Jitter

• Open Source / Rapid Updates
  – S1000D Common Source Database Architecture
  – Modular / Agile Design

• Disruptive Technology
  – Driving Commercial Industry to Provide Warfighting Solutions
    • PTC / Vuforia
    • Microsoft