MarCE 2.006 Improved Information Display Layouts & Enhanced Situational Awareness to Support Assault Navigation

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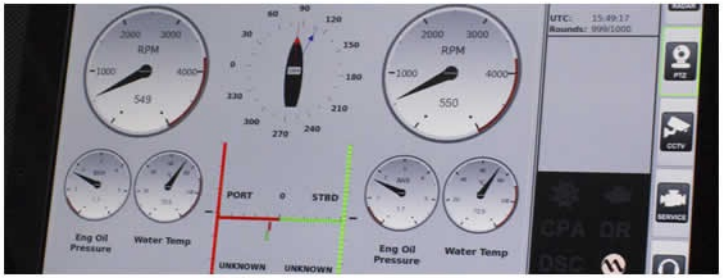

The project

- Came from DSTL
- Boats are getting faster and have the capability to be driven harder
- How could the HMI of navigation displays be improved (where H = Commander and M = Boat) to:
  - » Improve situational awareness (SA)
  - » Improve operational tempo

Who was involved

- DSTL
- SCISYS
- HFE Solutions
- Royal Marines

The current problem

- Cluttered consoles
- Big seas
- Fast craft
- = big navigational problems and reduced SA

A note on SA

- The amount a person deals with does not change
- But to allow the user a chance to focus on other things the navigational task must be easier

Making the current problem worse

- GPS can not be relied upon
- RADAR use may be denied
- = need tools to assist user in conventional navigation techniques

Which means….

- **Slow down**
- Mission tempo is reduced to unacceptable levels
- Loss of SA as the task of navigation consumes the focus of the commander

The approach

- Find a baseline
- Screens
- User interfaces
  - What could be read
  - Remove unnecessary clutter
  - How the interface would work to support the user
- Controllers (including mountings)
- Head up displays
- Use of an electronic architecture and flexible software baseline

The trials

- Vibrating chair and dark adaption
- Fonts and colours
- Navigation of boat and interface
- Use of controllers
- Putting it altogether on a full motion fast boat simulator

Video


MACSYS
MarCE Task 2006
Assault Navigation Crew Interface
Simulator Trial Overview
February 2015, Kongsberg, Utah, USA

Conclusion 1

- Take things away until you can’t use it
- Make what remains big enough to interact with
- Give the user a means to interact (controller) whilst being violently thrown about
- Give the user an easy interaction method

Conclusion 2

- The project successfully demonstrated that potential operational performance can be gained through improved navigation displays and equipment.
- The system needs to be addressed holistically, it is not one component that would improve navigation.
- It is possible to dynamically navigate a craft at 40 knots in a sea state 4!