

CASE STUDY

# MILITARY APP DESIGN

A re-designed communications suite of applications

NEIL GRAHAM



Mission Systems - Canada

## **General Dynamics Mission Systems - Canada**

was contracted by the Canadian government to modernize and improve the usability of the communications suite of applications used by signals operators and technicians in the field.

This initiative was part of a larger contract to supply military hardware and technology to the Canadian Armed Forces.

\*Screenshots of these applications are restricted and cannot be published in compliance with the security restrictions.



## MY ROLE

I collaborated with designers, product owners, researchers, analysts and engineers with touch points at every stage of the project.

- Leveraged research to prioritize features and design enjoyable experiences
- Drafted, summarized, and refined Human Factors Engineering documentation.
- Maintained and expanded the design system and component library.
- Created high fidelity prototypes and scenarios for user testing sessions.
- Provided design feedback and guidance to developers during implementation.
- Redesigned logos, iconography and visual branding of the applications suite.
- Drafted detailed stories and tasks for monthly sprint planning.



# DESIGN PROCESS



1. Heuristic and task analysis

2. Operational user stories and needs

3. Information architecture and user flows

4. Wireframes

5. High fidelity design and prototypes

6. Engineering support



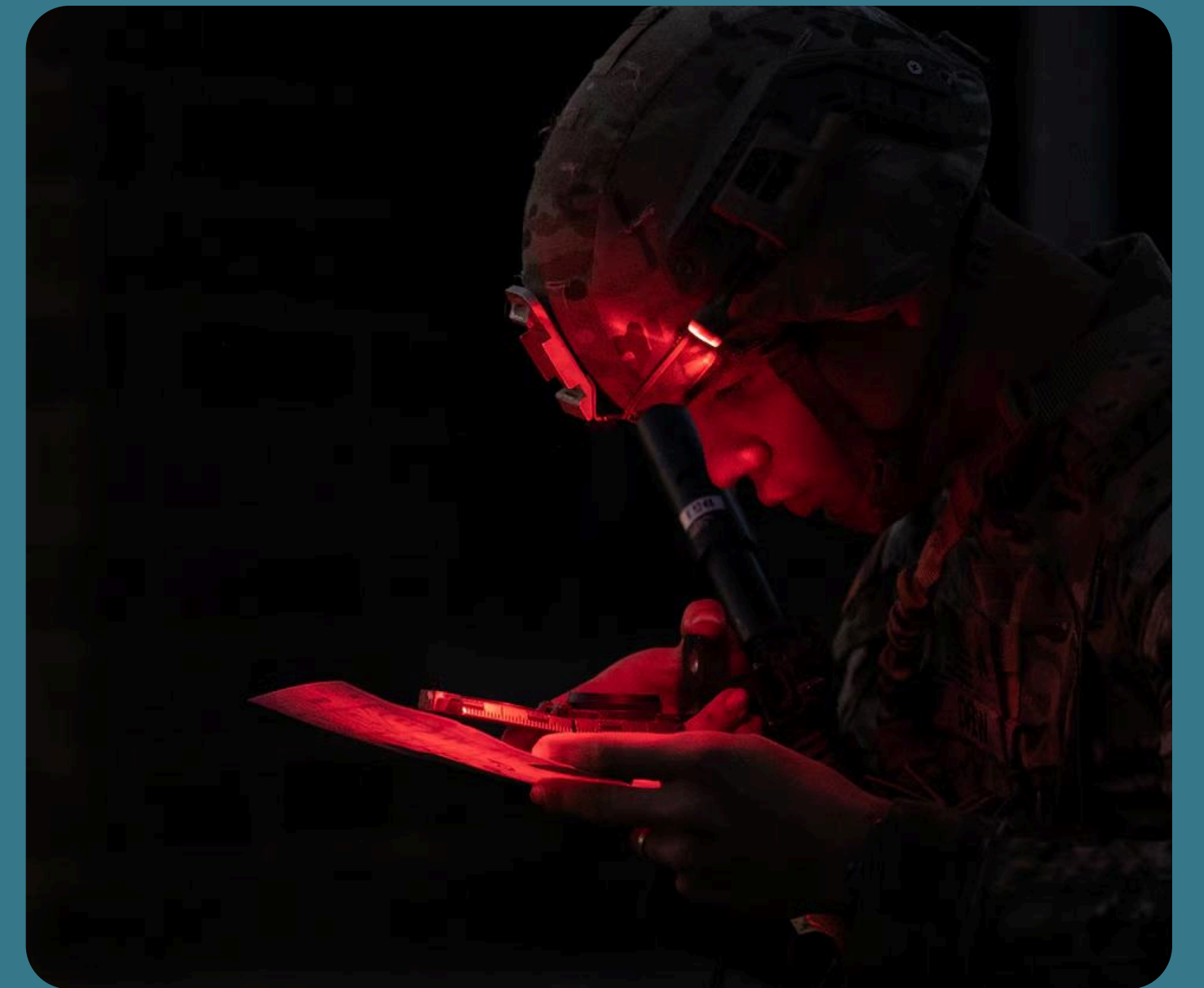
# MILITARY DESIGN GUIDELINES

Everything we designed was in compliance with Human Factors Engineering specifications (MIL-STD-1472H).

These are accessibility guidelines that enable soldiers to have safe and effective user experiences while using hardware and software on the battlefield.



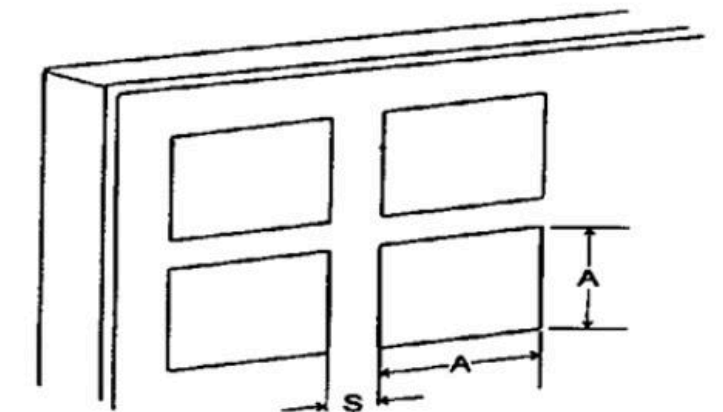
## DEPARTMENT OF DEFENSE DESIGN CRITERIA STANDARD HUMAN ENGINEERING



5.1.3.1.15 **Intermittent interaction.** Touchscreens may be used to complete intermittent action, cursor navigation and communication panel selection.

5.1.3.1.16 **Target shape and color.** If color coding is used, it shall be redundant to another for

5.1.3.1.17 **Dimensions, resistance, and separation.** The dimensions, resistance, and separation areas of touch screens shall conform to [figure 3](#).



Alphanumeric/Numeric Keyboards <sup>1/</sup>			
	A (Actuation area) <sup>2/</sup>	S (Separation) <sup>3/</sup>	Resist
<b>Minimum</b>	—	0	250 mN
<b>Preferred</b>	16 x 16 mm (0.6 x 0.6 in)	2 mm (0.08 in)	—
<b>Maximum</b>	—	6 mm (0.25 in)	1.5 N (5
<b>Other Applications</b>			

# MILITARY DESIGN GUIDELINES

The following are some examples of MIL-STD guidelines that factored into our design process.



## **Button touch target sizes and separations**

With or without gloves, used when stationary or on the move

## **Lighting conditions**

Low light, red light, shade, dark interiors and direct sunlight

## **Colour contrast ratios**

Nothing lower than 6:1 due to varied lighting conditions (low light, red light, direct sunlight) or impacted by tactical or tinted eyewear

## **Font sizing**

Must be readable when on the move or viewing screens at awkward angles in tight conditions

## **Colour usage**

Red, orange, and green are restricted for general use, reserved for indicating specific information such as threats, alarms or OK status.



# MEASURING SUCCESS

User feedback we received was that these re-design applications are now easier and more enjoyable to use.

Signals technicians are able to do their diagnostics and config tasks faster and more efficiency. They feel that the applications are intuitive to use and they like the new, modern user interface.

