ASSIGNMENT 3.1 - Requirement Elicitation

GROUP MEMBERS

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INTRODUCTION

1.1 This study was conducted to determine the feasibility of the ARES (Augmented-Reality Environment Tactical Scanner) system. The study finds its basis in historical research and private consultations from real-world NATO military personnel of high ranks. A descriptive survey was conducted beforehand, in which a previous draft of the document was provided to said personnel, ranking from Lieutenant-Colonel to 2-Star Generals, who were sourced from personal networking. As the initial prototype is already available, the team has decided to proceed with its continued development and further refinement of ARES' algorithms and data-models.

TRADITIONAL ELICITATION

2.1 Brainstorming

The team had gathered to ignite critical-thinking and problem-solving in analyzing for solutions toward real-world problems in the military. We have taken multiple considerations into account and agreed to this concept as a common ground as military-enthusiasts and engineering students of varying fields of study, skills, and expertise. In addition, the availability of this project and contacts within global military forces had aided us in its development.

2.2 Focus Groups

Our combined personal networks encompass multiple nations and have allowed us to search, then narrow down our selection for potential stakeholders. They are sourced from a personal network of ranking military personnel posted across the following countries, denoted by number of advisors / interviewees:

NATO:	Turkey (1), France (1), UK (1), USA (7), Canada (1)
BRICS:	Russia (3), China (2), Egypt (1)
ASEAN:	Indonesia (3), Malaysia (4), Singapore (1)

Our target market is obviously military in origin, and we have a special commission and funding from NATO, specifically with representatives from commissioned-officers (CO) and third-party defense contractors.

2.3.1 Interviews

A consultation process has been conducted in a one week period to survey the current situation of technological and tactical capabilities across various military forces worldwide. These military advisors are of different origins and may have differing responses. The consultation process is covered under a signed non-disclosure agreement (NDA) to protect the personal identities and data regarding the selected military personnel. The preliminary questions are provided below.

The transcript can be accessed **here**.

2.3.2 Preliminary questions:

- Let's start with personal profiles. Kindly state your origin, rank, and position in the military.
- What is the current status for combat readiness of your military?
- You have a history of active duty and deployment in [country N].
  Provide a detailed summary of your personal experiences.
- Were there instances where you wished that you had the proper equipment to complete a particular mission or prevent those casualties / collateral damages?
- What technological trends are currently active in your military?
  Preferably in the fields of AI and VR / AR.
- I have seen recent technological developments in the military come and go in failure.
  What makes you positive that [military project N] will be a success?
- How do you think it will affect your military, as a whole?
- Are you concerned / worried that robotic soldiers or other autonomous war machines may replace your role and position in the future?

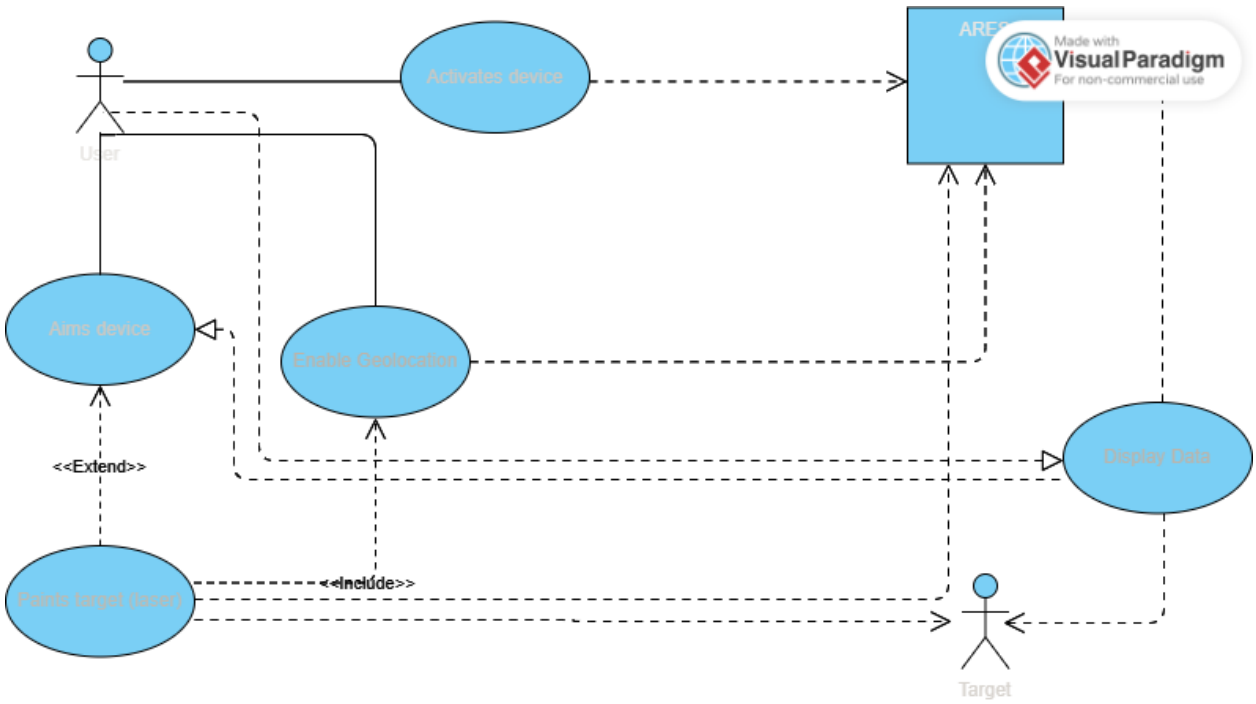
2.4 Observation

Elicitation results had indicated that:

- Military forces globally are experiencing a stagnation in cultural and technological developments due to the lack of large-scale conflicts, global economic recession, and increasing public backlash
- The budget cuts and decrease / loss in NATO military expenditures means that they have only reached 13% of the projected $ 674 billion mark in 2023; when estimated on the basis of each country's averages, the expenditures has declined by nearly half, from 3.6% of a country's GDP in the Cold War to 1.9% in 2021
- In 2018, then-president Donald J. Trump had suggested that member states of NATO input at least 2% of their annual GDP towards national defense; roughly 25 of NATO's 30 members had failed to reach this goal
- Military R&D are constantly faced with ballooning costs and setbacks in adapting to modern digital technology, as seen in the development of the F-35 stealth interceptor ($ 391-418 billion) or Zumwalt-class battleship programs ($ 22.5 + 7.2 billion per ship)
- The current trend in military technology is focused on centralized command and control via networking (IoT), cyberwarfare (propaganda, cyberattacks, public surveillance), and autonomous operations (drones, adaptive fire-control and missile targeting systems, stealth, flight plotting)

3.1 Use-Case Diagram and Specifications

For assessment, a use-case diagram have been created to analyze the functions and features of the ARES device and its program(s) :



Gambar 3.1 | "*Use-Case Diagram: ARES*"