

Client Needs and Corresponding Design Criteria:

- Highlights ethical concerns – Clearly demonstrates at least 3 concerns
- Instructions and setup should be simple and clear – Number and readability of instruction steps (concise)
- Pace should not be too fast or too drawn out – Should not exceed 10 minutes time or be no less than 5 minutes
- No sense of victory for players – Simulation outcome (no positive reinforcement and players should not feel rewarded)
- Organized and manageable code – Code readability and proper documentation
- Simple and minimal modifications – Low number of customizable elements
- Portable experience – Low setup requirements (can function on standard laptop, few physical modifications)
- Easy player identification by RoboMaster S1 - Recognition accuracy
- Experience is multiplayer, can be played multiple times – Number of supported players (3-5)
- Adhere to confinements – Maximum space of 20'x20'
- Damage control and preventative measures for injury – Safety protocols (speed limit, robot does not run into obstacles or participants)
- Should not induce PTSD in participants – Suitability for all participants (no graphic violence or intense scenarios)
- Simplicity in functionality – Simple code and “gameplay”
- Does not glorify armed combat – Stimulation is not combat focused and no positive war imagery
- Completely autonomous control after setup – The robot must function autonomously upon activation

Functional Requirements:

Maximum space of 20' x 20'

Simple code that can be easily edited, if need be, and “gameplay” that matches

The robot and “gameplay” should function autonomously upon its activation

Timeline of the game should be no less than 5 minutes and no more than 10 minutes

The players should have a numerical value or functional way for the RoboMaster S1 to identify them during gameplay

The experience can easily be played multiple times with multiple groups of people

Instructions for setup, take down and “gameplay” associated with the RoboMaster S1 and the experience should be simple and straightforward

Non-Functional Requirements:

Three of the nine highlighted ethical concerns should be easily identifiable

The scenarios demonstrated within should not be realistic enough to induce reactions from Post Traumatic Stress Disorder

War and armed combat should not be glorified or put into a positive light because of the experience

The possibility of damages and or injury should be minimal, if any during the experience

The experience should be easily transportable

Any modifications made to the RoboMaster S1 should be minimal, limited to 5 modifications that should be easily removable (within 30 seconds)

No matter the outcome of the “game,” players should consistently feel a lack of victory

Benchmark:

	Robomaster S1	Unitree go2 air
company	dji	unitree
size	32*24*27cm	70*31*40cm
cost	\$499	\$1600
battery	2400mAh, 25.92Wh(35min)	8000mAh(1-2h)
camera	2560*1440	1280*720
Lidar	none	360 ^o *90 ^o
Program	Support	Support
weight	3.3kg	15kg
material	High-strength plastic and rubber wheels	Aluminum alloy + High strength engineering plastic
Max climb drop height	No climb	15cm
speed	0-3.5m/s forward 0-2.5m/s backward 0-2.8m/s sideways	Max 2.5m/s

Target Specifications:

Maximum Amount of Players per Session: 3-5 Players

Maximum Area for Experience: 20' by 20'

Minimum and Maximum Time for Experience: 5-10 Minutes per Session

Maximum Number of Possible Rounds: 5

Minimum and Maximum Time per Round: 1-2 Minutes

Client Meeting Impacts:

- Helped to define limitations and resources that could be used
- Gave a connection and general idea for who our clientele are
- Helped to answer specific questions regarding design criteria, limitations and client needs over all
- Helped to provide sources for further information regarding the project and any extra information we may need