

Thesis Project Portfolio

AIAA HDI-25 Aircraft Design Unmanned Homeland Defense
Interceptor

(Technical Report)

The Struggle Over Regulating Autonomous Weapons Systems

(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

Lethal autonomous weapons systems (LAWS) and remotely piloted weapons systems (RPWS) remain unregulated; efforts to subject their use to international standards are controversial.

The research team developed a conceptual defensive RPWS. Using computer-aided design (CAD) and heady calculations, the team designed an aircraft body. The team tested the body for payload, sensor, and maneuvering capabilities in simulations. Results indicate that the design fulfills core defensive mission requirements. Fuel, as a consequence of speed, was the greatest limiting factor. The design demonstrates the feasibility of strictly defensive RPWSs.

Proposals to subject LAWS/RPWS to international regulations are controversial. As militaries develop such systems, proponents of regulation are divided over implications for human responsibility and the threshold to aggression. Consequently, global standards have failed to keep pace with the development and proliferation of such weapons systems.