

# IMPLEMENTATION OF GUIDANCE LAWS FOR PRECISION GUIDED MUNITIONS

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## ABSTRACT:

The responsibility of accuracy with indirect fire weapons has traditionally rested on the shoulders of the firing team. Recent developments in precision guided projectiles such as the XM982 Excalibur have changed this impression. This technology is invaluable in combat situations where civilian considerations take precedence. However, the Excalibur round too expensive to make it an appealing alternative to helicopter strikes. In order to make this effective technology more logistically appealing new guidance laws will be implemented to more efficiently calculate the round's location and orientation without including expensive onboard measurement equipment. By reducing the onboard equipment, the cost will be greatly reduced, creating more attractive precision guided munitions. This project implements proportional navigation, trajectory tracking and impact point predicting guidance laws in order to compare accuracies and optimize navigation systems while simultaneously minimizing measured data, relying instead on calculated data.

**KEYWORDS:** guidance laws, proportional navigation, trajectory tracking, impact point prediction, precision guided munition

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