Design and Implementation Guidance System of Guided Rocket RKX-200 Using Optimal Guidance Law

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Abstract : As an island nation, is a necessity for the Republic of Indonesia to have a capable military defense on land, sea or air that the development of military weapons such as rockets for air defense becomes very important. RKX rocket-200 is one of the guided missiles which are developed by consortium Indonesia and coordinated by LAPAN that serve to intercept the target. RKX-200 is designed to have the speed of Mach 0.5-0.9. RKX rocket-200 belongs to the category two-stage rocket that control is carried out on the second stage when the rocket has separated from the booster. The requirement for better performance to intercept missiles with higher maneuverability continues to push optimal guidance law development, which is derived from non-linear equations. This research focused on the design and implementation of a guidance system based OGL on the rocket RKX-200 while considering the limitation of rockets such as aerodynamic rocket and actuator. Guided missile control system has three main parts, namely, guidance system, navigation system and autopilot systems. As for other parts such as navigation systems and other supporting simulated on MATLAB based on the results of previous studies. In addition to using the MATLAB simulation also conducted testing with hardware-based ARM TWR-K60D100M conjunction with a navigation system and nonlinear models in MATLAB using Hardware-in-the-Loop Simulation (HILS).

Keywords : RKX-200, guidance system, optimal guidance law, Hils

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