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Counter Unmanned Aerial System Assessment

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Abstract: Global availability of advanced capability Group 1 unmanned aerial systems (UAS) is creating significant commercial opportunities while simultaneously imposing novel threats to government and military organizations. While Group 2, 3, and 4 aircraft constitute large military grade systems, these 'low, slow, and small' aircraft, previously the domain of hobby pilots and small drone enthusiasts, have migrated into the hands of insurgent and threat organizations in many areas around the world. In response, an array of counter unmanned aerial systems (CUAS) are emerging without a corresponding methodology to assess their effectiveness within the context of their deployment environment. This project introduces a novel, comprehensive CUAS multi-level assessment model for dense urban environments characterized by closely integrated infrastructure, large modern populations and electronic communications. The assessment system is capable of directly supporting the acquisition decision. Based on the tenets of multi-criteria decision modeling (MCDM), this assessment approach embeds organizational needs and requirements while accommodating protection priorities. The results of applying this approach within a live, urban field experiment partnering with the Department of Homeland Security in New Orleans, Louisiana are discussed with recommendations for future extensions and applications.

Keywords: unmanned aerial systems (UAS), counter unmanned aerial Systems (CUAS), assessment model, acquisition decision

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