

Fixed-wing aircraft for medical emergencies

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Abstract

Emergency medical situations such as opioid overdoses require immediate intervention, however first responders may be delayed by traffic, distance, or accessibility constraints in suburban areas. This senior project focuses on the design and construction of a small, fixed-wing unmanned aircraft intended to rapidly deliver critical medical supplies, such as naloxone (Narcan) directly to individuals in need. The aircraft is based on the FT Explorer airframe from Flite Test, selected for its flight stability and efficiency. We have built a lightweight payload delivery system utilizing a kirigami-style parachute constructed from polyester sheet to enable controlled and safe deployment of medical supplies. The project prioritizes accurate payload delivery, and low-cost construction, with the goal of demonstrating how unmanned aircraft systems could aid in traditional emergency response and reduce time-to-treatment in life-threatening situations.

Index Terms

fixed wing drone, medical aid aircraft, kirigami parachute, naloxone delivery, Flite Test, FT Explorer