Drone–drone Collisions over Lynchburg VA via the Kinetic Theory of Gases and Simulation Models

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Drone-based delivery systems might be an attractive alternative to ground-based delivery for corporations such as Amazon and FedEx due to improved speeds and reduced costs. Such an

alternative can only reduce costs if the navigation technology is simple enough and if unwanted collisions that damage drones or their parcels are sufficiently negligible. A recent publication has shown that the application of the kinetic theory of gases to hypothetical drone traffic above New York City results in up to 170,000 collisions per day by 2026 for "smart" drones. In contrast, Lynchburg, VA, with a more modest population density than NYC, might prove to be more amenable to safe drone deliveries under similar input conditions. We intend to collect the data required to apply the kinetic theory of gases to Lynchburg, as well as to apply direct simulation models to Lynchburg drone delivery traffic.