

Astral Automation



A photograph showing a cluster of traditional thatched-roof houses nestled in a lush, green mountainous area. The houses are built on stilts and surrounded by dense tropical vegetation, including palm trees and banana plants. The scene is bright and sunny, highlighting the vibrant green colors of the environment.

The Problem

Accessibility is a major hurdle
for effectively transporting
items in remote regions

The Solution.

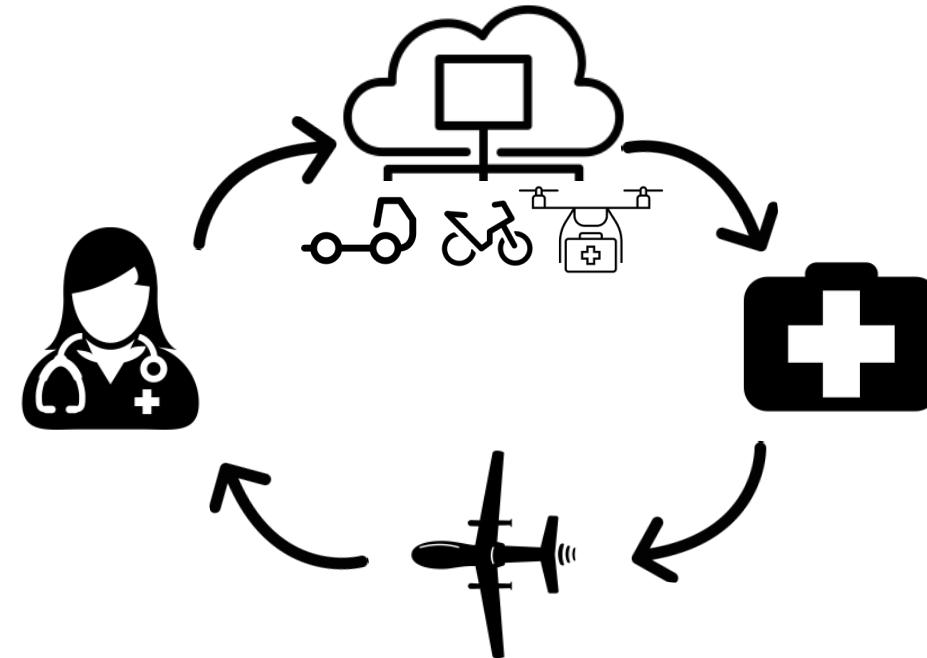
A platform that optimizes supply routes across a network of vehicles ranging from ground vehicles to autonomous drones, providing an end-to-end delivery solution that saves our users time and money.



How it works

Cloud platform picks vehicle type and routes available vehicle to nearby hospital.

Clinic requests
1L of blood.



Hospital loads
package.

Drone deployed and is
unloaded at clinic.

The Technology

Astral coordinates ground transportation with autonomous drones to provide a rapid, inexpensive, and on-demand delivery solution. This enables remote clinics to get the supplies they need quickly, and at a lower cost. Our technology utilizes route optimization algorithms and a suite of sensors on our drones to provide reliable transport every time.

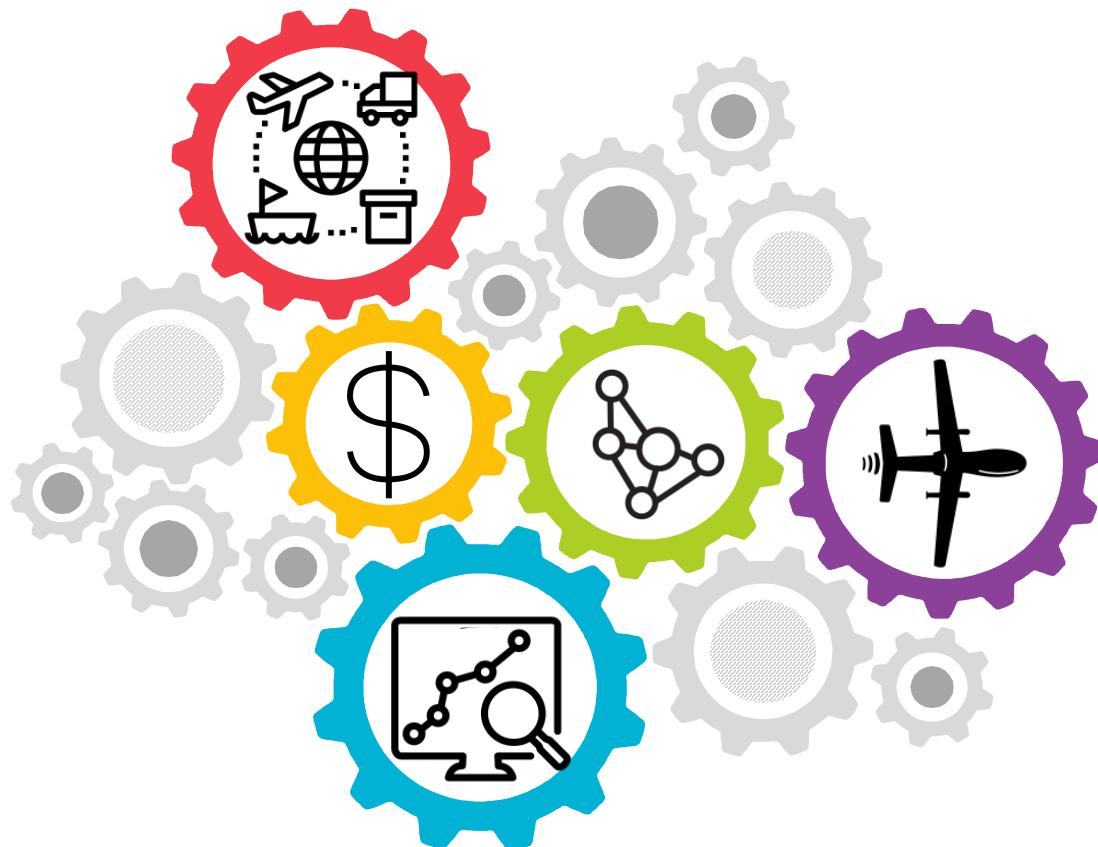
The screenshot shows the Astral software interface. At the top, there are tabs for Home, Orders, Settings, and Help. Below that is a 'Create Order' section with fields for Pickup (Simmons Hall), Deliver (Maseeh Hall), Weight (kg) (2), and Payload (food). There are 'Request' and 'Send' buttons, and a 'Place order' button. Below this is the 'Order Manager' table:

Status	OrderID	Source	Dest	Payload	ETA
created	96	Simmons Hall	Maseeh Hall	food	Pending
created	81	Simmons Hall	PSK	blood	Pending
created	82	Simmons Hall	Student Center (W21)	food	Pending
created	84	Simmons Hall	PSK	supplies	Pending
created	80	Simmons Hall	Maseeh Hall	supplies	Pending
created	94	PSK	Stata Center (Eng 32)	food	Pending

To the right is a map of a university campus with various buildings and streets labeled. A red pin marks the pickup location (Simmons Hall) and a blue pin marks the delivery location (Maseeh Hall). A green line on the map indicates the delivery route. At the bottom right of the map, there is status information: 'Locate me', 'Lat: 71.099239 Lng: 28.298329 Alt: 21.40 (m)', '17 Orders in progress', and '12 Drones available'.



Key Differentiators



FLEXIBLE

Platform that incorporates a variety of vehicles for varying terrain and conditions.

AFFORDABLE

Our platform continuously monitors drones and optimizes routes based on weather conditions and vehicle availability.

SOFTWARE

Optimized ground transport and logistics

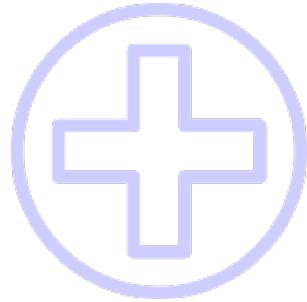
RELIABLE

Our platform continuously monitors drones and optimizes routes based on weather conditions and vehicle availability.

ACCESSIBLE

Travelling at 100 km/hour, our drones cut down hour-long ground deliveries to 30 minutes or less.

Go-to-Market



MEDICAL SUPPLIES

In Peru for example, local doctors report an average of 45 snake bites per month with no rapid access to anti-venom. In situations such as these, road access takes over 6 hours but can be done via drone in under half an hour.



DISASTER RELIEF

In sub-Saharan Africa 85% of roads are inaccessible during the rainy season which cuts off huge swaths of the population. A typical route which can take up to 6 hours can be done within 35 minutes via drone.

Business Timeline

Autonomous drone completed that can navigate waypoints while avoiding obstacles.



Sept 2018

Full scale operations and autonomous drone fleet in select regions effectively fulfilling orders.



Dec 2019

Expand beyond medical delivery to general consumer delivery opening the door to a bunch larger market share.



2021

Pilot Tests running in Central Asia with an NGO we are partnered with.

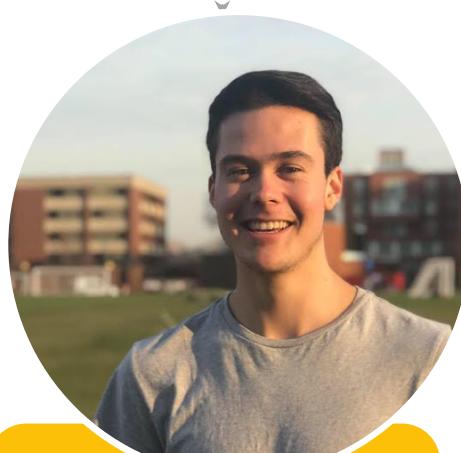


Fully autonomous fleet running on the ground in 5 developing regions.





Isaac Perper
MechE w/Robotics



Milo Knowles
CompSci & AeroAstro



Alykhan Bhanji
Mechanical Eng



Loewen Cavill
MechE w/EECS

meet the team.



Sandbox



MIT IDEAS
GLOBAL CHALLENGE

