

# **FLEXIONIZATION CONTROL SYSTEM (FCS)**

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NONLINEAR CONTROL ARCHITECTURE  
FOR UAVS & ROBOTICS

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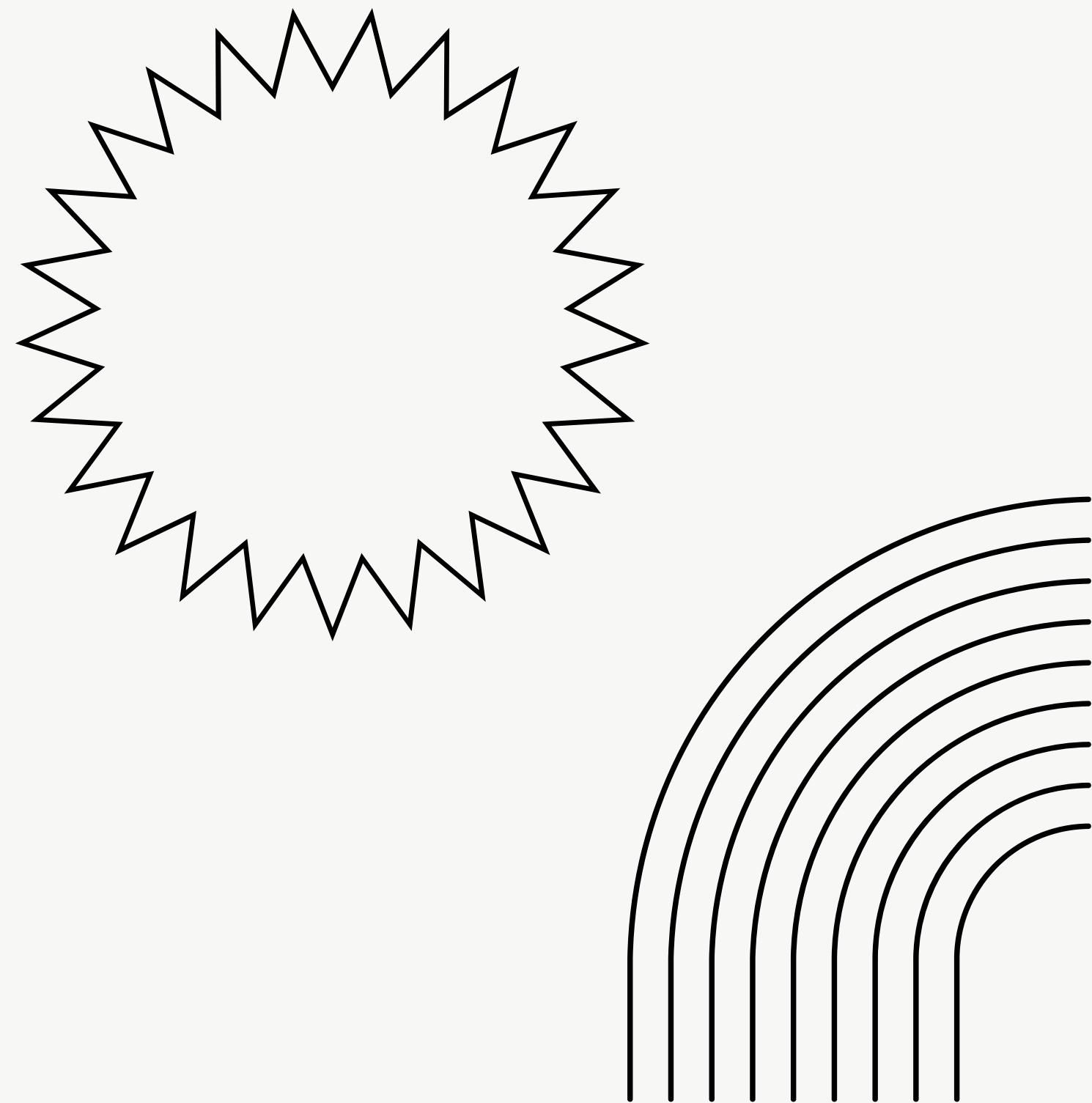
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# PROBLEM

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Modern robotics and UAV systems operate in unstable, nonlinear environments where classical PID-based control loops lose stability and accuracy.

- Nonlinear dynamics cannot be controlled reliably using classical methods.
- PID requires constant manual tuning and does not scale across systems.
- Turbulence, vibration and heterogeneous media create large error spikes.
- Manufacturers rely on dozens of ad-hoc filters and patches (“control duct tape”).
- The industry lacks a unified, mathematically robust control framework.

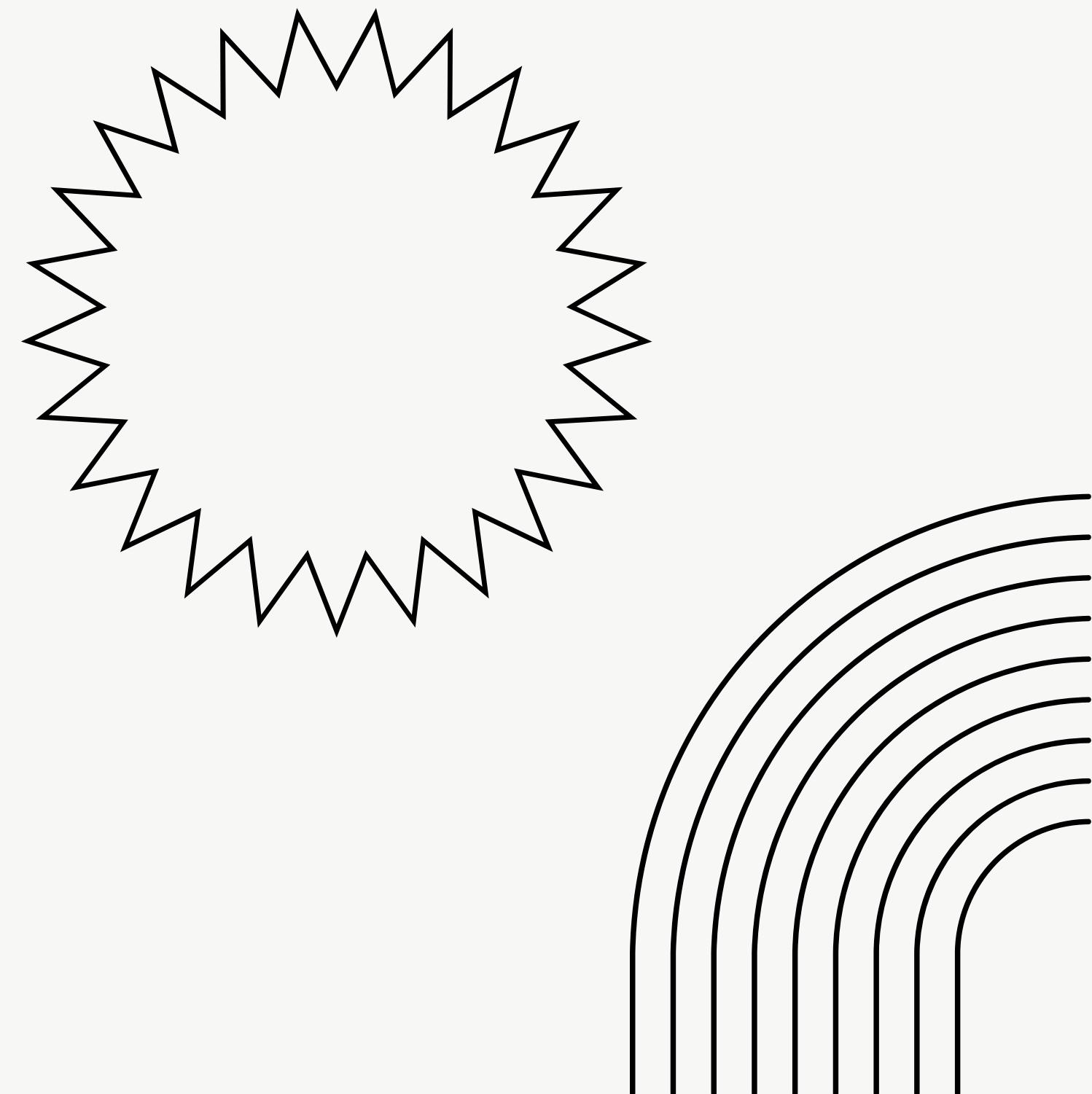


# SOLUTION

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Flexionization (FCS) introduces a new control architecture based on the FXI- $\Delta$ -E model – a mathematically structured loop for stable nonlinear control.

- Converts deviation into a controlled FXI-space where stability is preserved.
- Smooths errors through an equilibrium operator instead of PID reactive jumps.
- Works consistently in turbulence, vibration and heterogeneous media.
- Eliminates the need for dozens of ad-hoc filters and patches.
- Provides a universal control framework for drones, robotics and embedded systems.

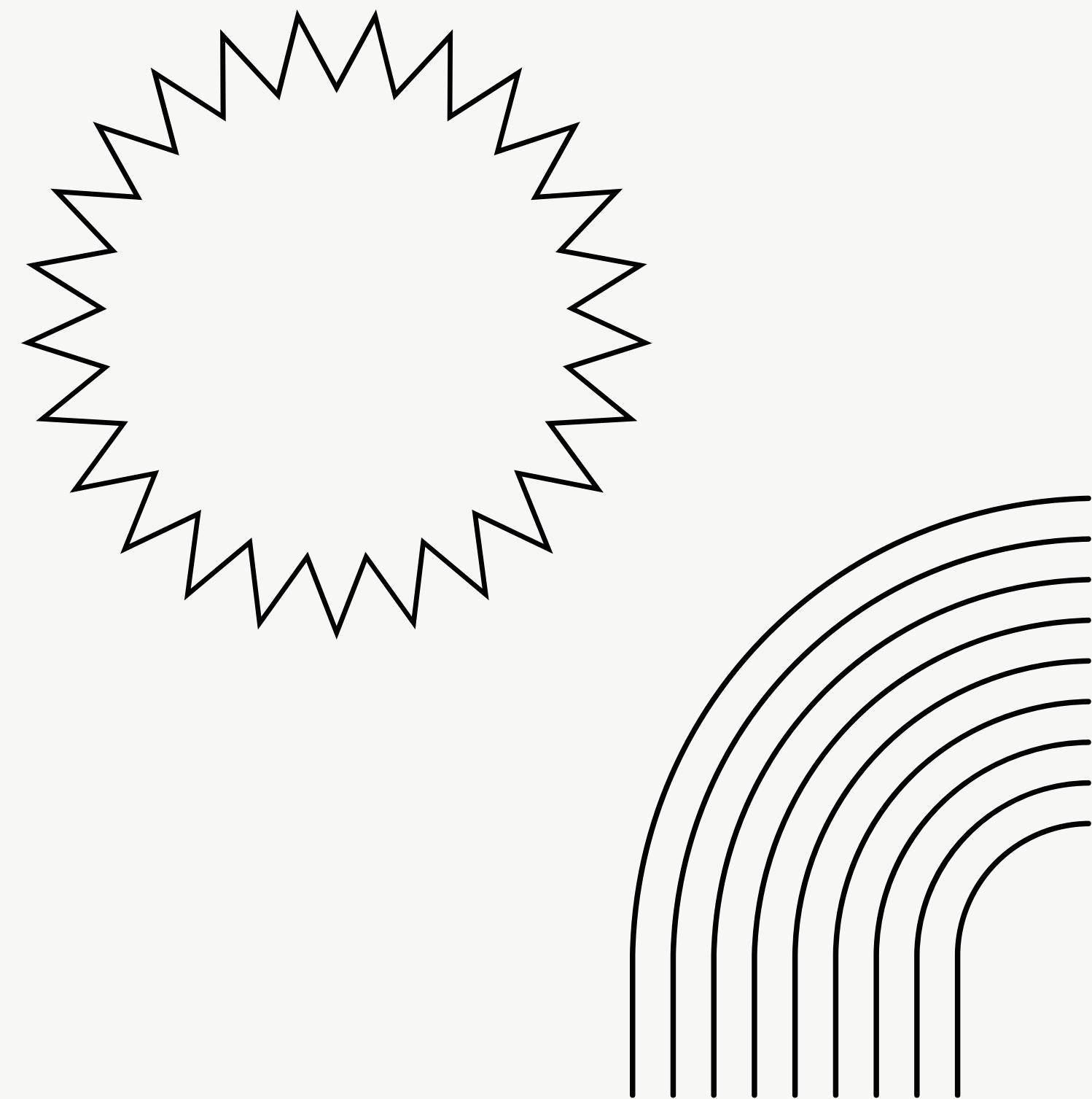


# PRODUCT

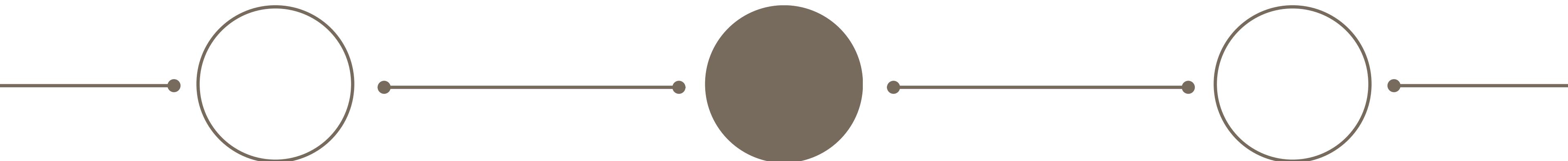
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We provide a lightweight, embeddable C++ SDK that implements the full Flexionization (FCS) control loop for real-time systems.

- Minimal, modular C++ core (<300 lines) ready for STM32, PX4, ROS2.
- Plug-and-play operators: F, E, F-1, and G with default and custom variants.
- Stable nonlinear control without PID tuning.
- Works as a drop-in module for drones, robots, actuators, motion controllers.
- Fully documented with API reference, examples, and integration patterns.



# MARKET & TRACTION



## Market:

- UAV market: \$38B → \$90B by 2030 (commercial + defense).
- Robotics market: \$40B → \$140B by 2030.
- Motion control & embedded systems: >\$20B annually.

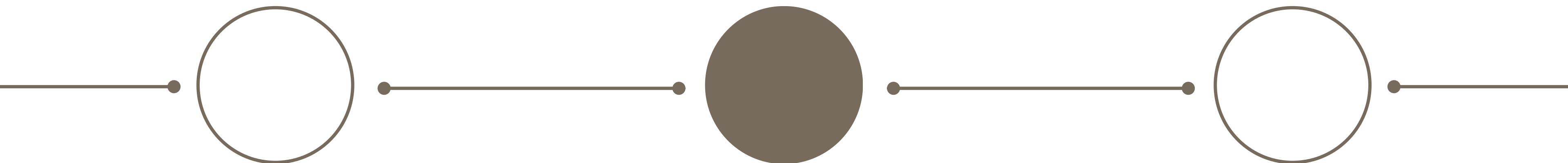
## Why now:

- Demand for autonomous drones and robotics is rapidly accelerating.
- Nonlinear environments expose the limitations of PID-based control.

## Traction:

- Working C++ SDK, documented and integration-ready.
- Architecture validated through the FXI-Δ-E mathematical model.
- Preparing for pilot integrations with UAV and robotics developers.

# ASK & CONTACT



## Ask:

- Seeking early-stage investment to assemble the core engineering team.
- Funding need: \$250k-\$400k for 12 months of development, pilots, and audit.
- Goals: finalize SDK v1.0, integrate with PX4/ROS2, run 3-5 pilot deployments.

## Use of funds:

- Core engineering (control theory + embedded systems).
- Certification, security audit, and optimization.
- Pilot programs with drone/robotics manufacturers.

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