

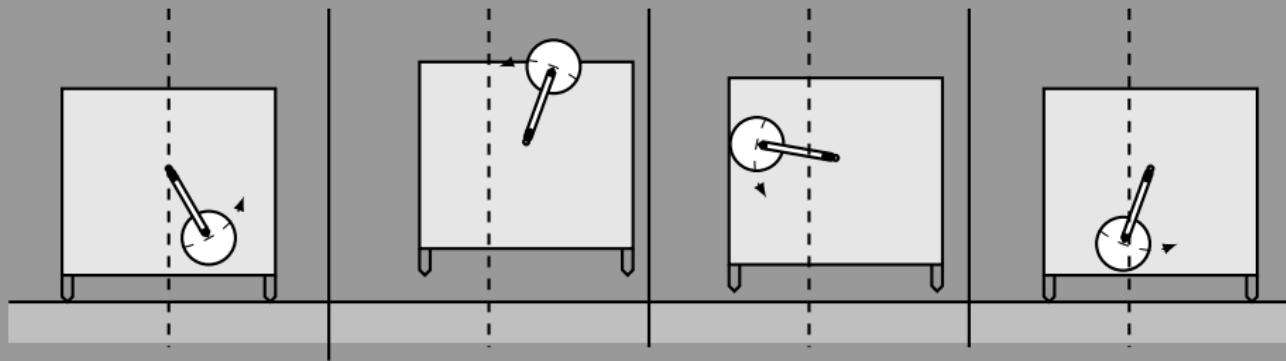
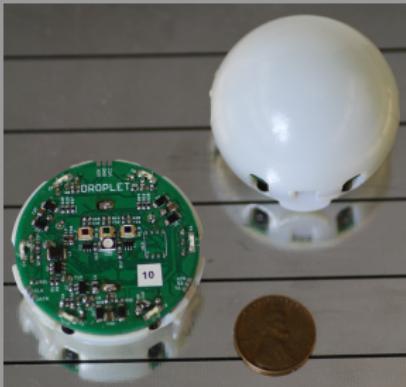
A Stick-Slip Omnidirectional Powertrain for Low-Cost Swarm Robotics: Mechanism, Calibration, and Control

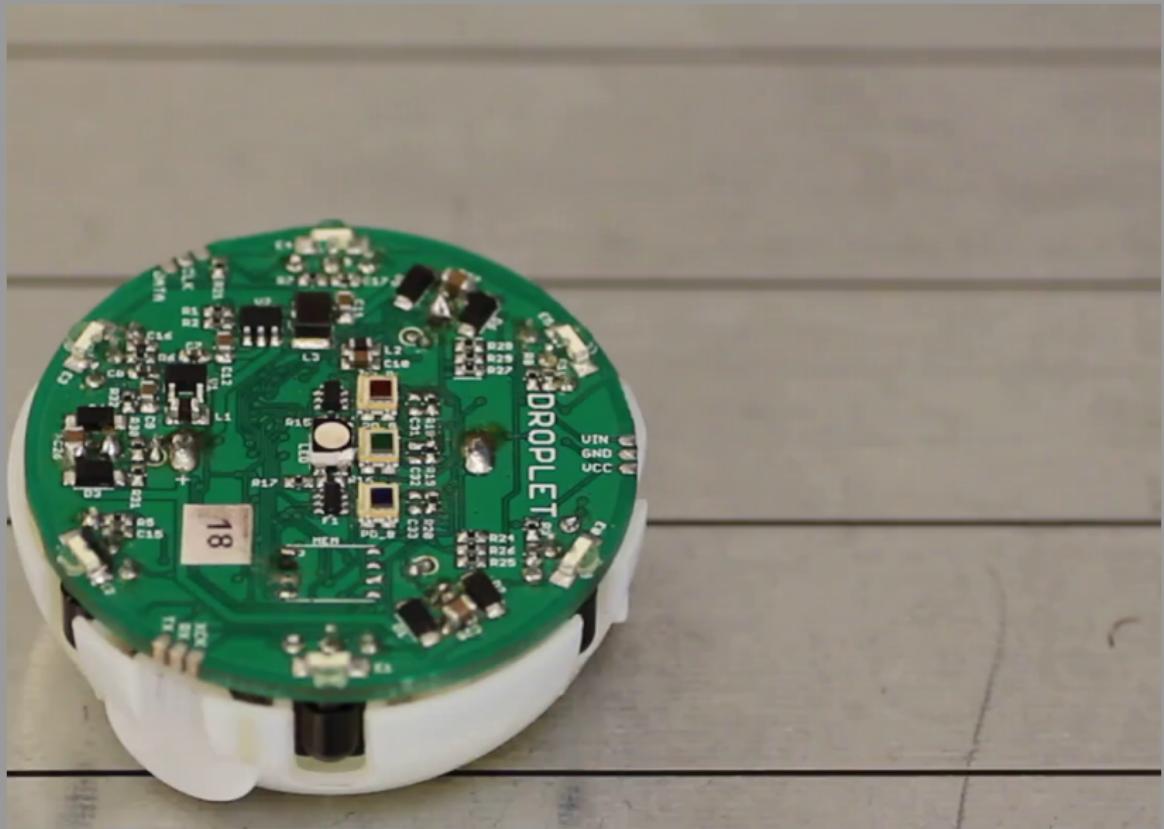
John Klingner, Anshul Kanakia, Nicholas Farrow, Dustin
Reishus and Nikolaus Correll

Department of Computer Science
University of Colorado Boulder

Motivation & Background

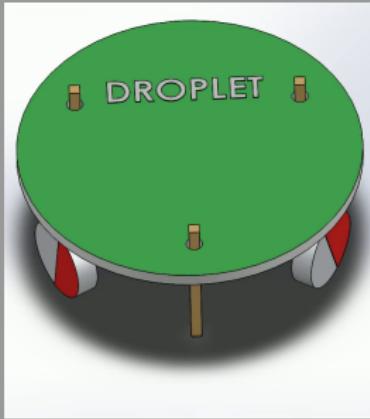
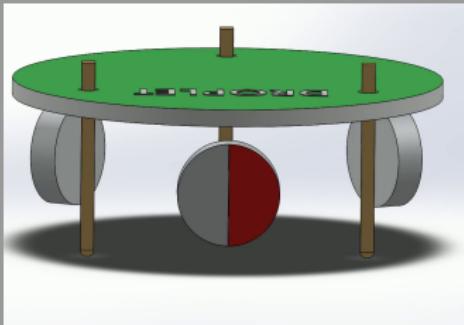
- Stick-slip motion.
 - Think of the way a vibrating cell phone moves across a tabletop.
 - Low cost, compact, and simple.





Mechanism

- Motors opposite legs.
- One motor on at a time gives 'steps'.
- Chain together a sequence of steps to walk.



Calibration

- Downside of low cost is inconsistent performance across different motors.
- To mitigate this problem, each robot is calibrated.
 - If a motor tends to be weaker, turn it on for longer.
- We also present a method for automatic calibration.