Millimeter-Scale Robot Cable Assembly

Animal Inspired Movement and Robotics Lab

University of Colorado Boulder

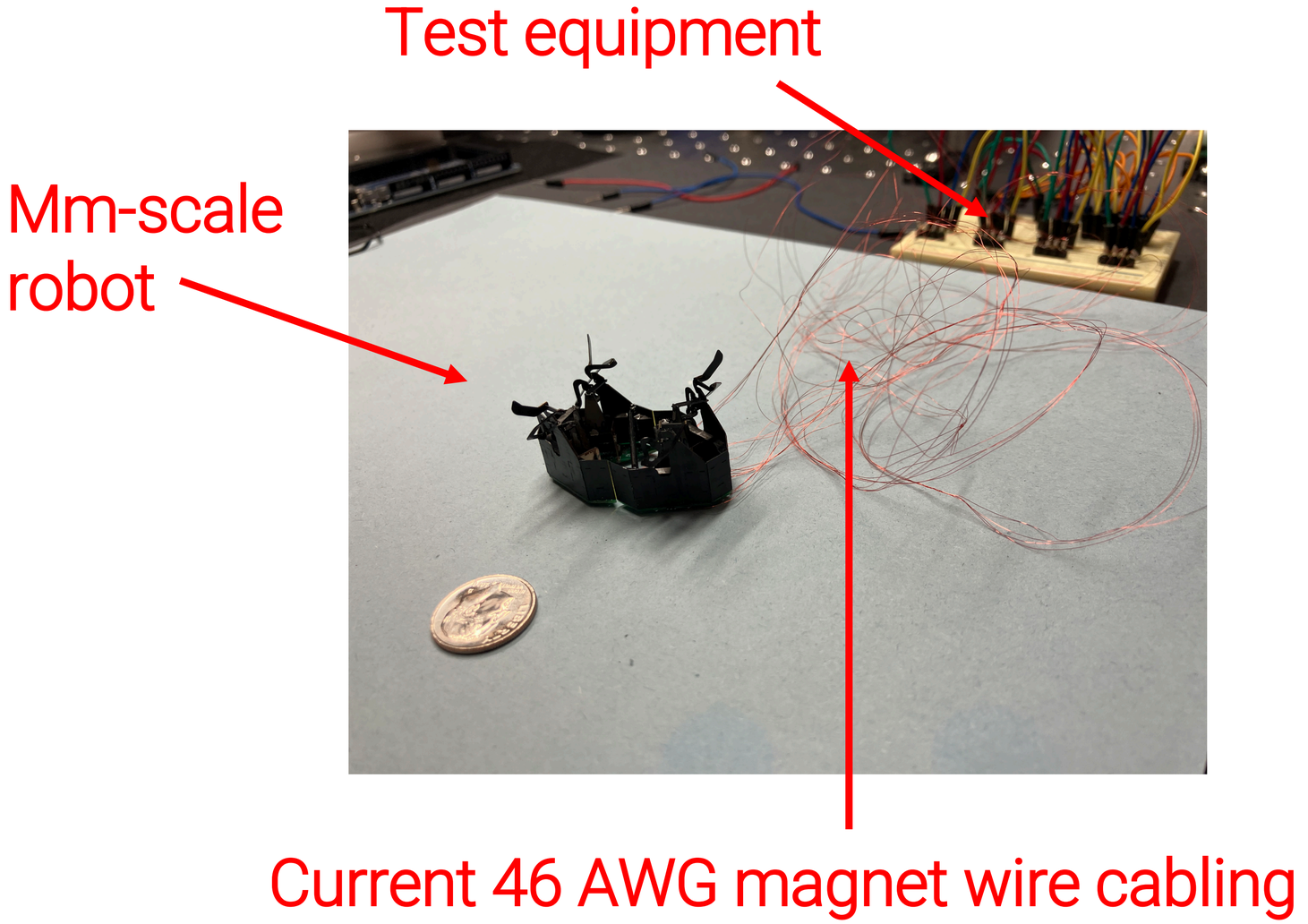
Contact Information

Parker McDonnell
Parker.mcdonnell@colorado.edu
207-610-2211
PI: Kaushik Jayaram
Kaushik.Jayaram@colorado.edu
CU Boulder
Paul M. Rady Mechanical Engineering
1111 Engineering Drive, UCB 427
Boulder, CO 80309

Millimeter-Scale Robot Cabling Needs

Need: detachable cable for connecting mm-scale robot to test equipment

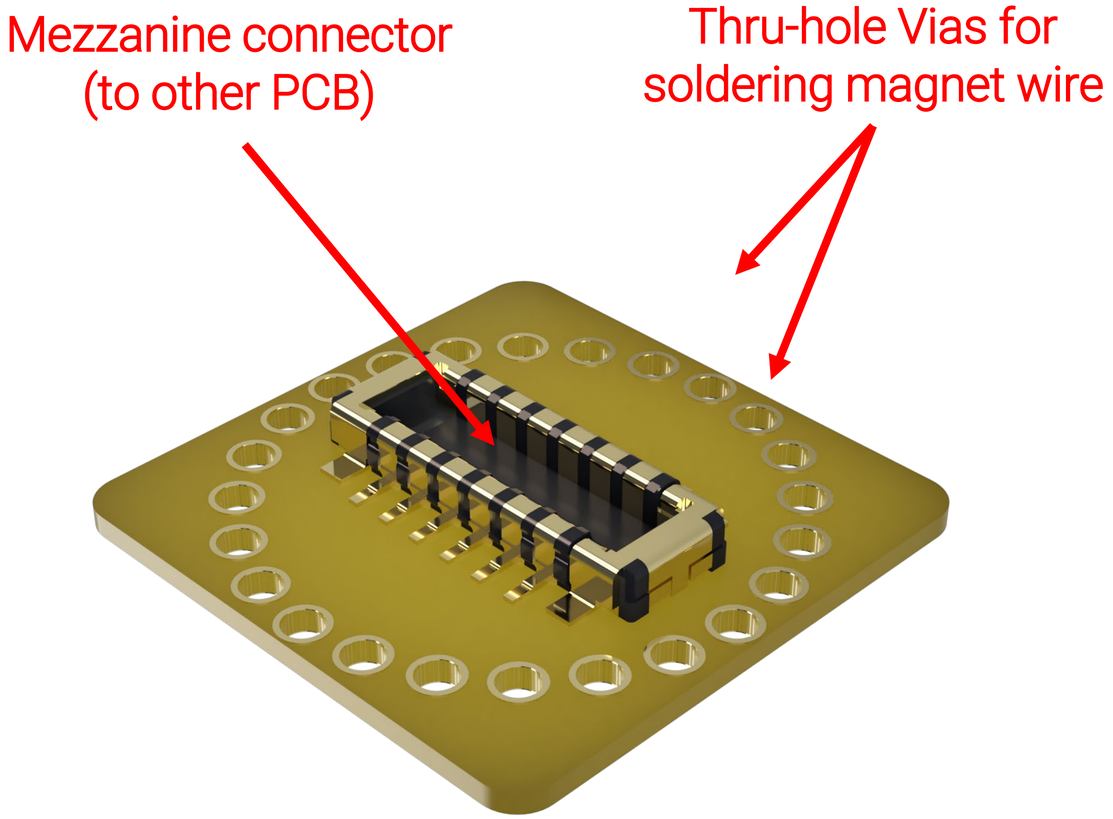
- Extremely **light weight** and **complaint** cable.
- **Connectorized for easy installation** and disconnection from robot and test equipment.
- Needs to connect **20-24 signals**.
- Needs to **withstand 200V** signaling.



Millimeter-Scale Robot Cabling Flex PCB Concept

5x5 mm flex PCB with 20 or 24 pin mezzanine connector

- Flex PCB with mezzanine connector for interfacing to flex PCBs (one on test equipment, one on robot).
- 20 – 24 through hole vias for soldering magnet wire.
- *PCB with connector will be Provided by our lab*



Flex PCB (5x5mm)

Note: The rendered connector is only 12 pins.
The real version will have 20 or 24 pins.

Millimeter-Scale Robot Cabling

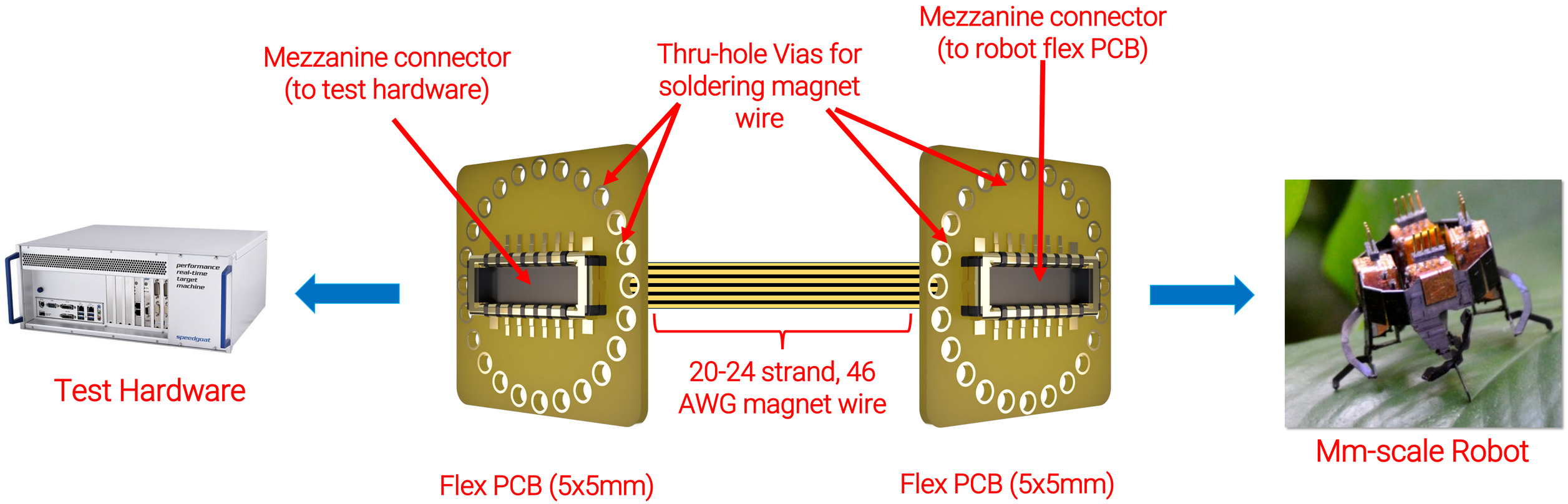
Conductors:	20-24 wires
Gauge:	46 AWG
Enamel:	Polyamide
Length:	.3 to .6 meters
Termination:	5x5mm flex PCB via (soldered)

Currently Using: MWS 6/48 HPN-180 +
POLYAMIDE BOND Multifilar® Magnet Wire
COLORS: RED/GREEN/NAT/RED/GREEN/NAT

https://mwswire.com/specialty-wire/multifilar-magnet-wire/

Millimeter-Scale Robot Cable Concept

Cable connects test equipment to mm-scale robot with easy mezzanine connector



Note: Rendered connector only has 12 pins. Actual PCB will have 20 or 24 pin connector.