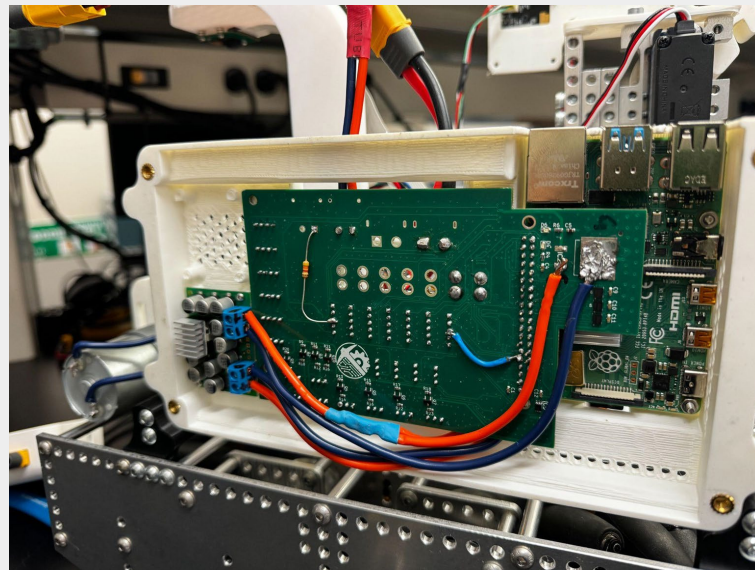
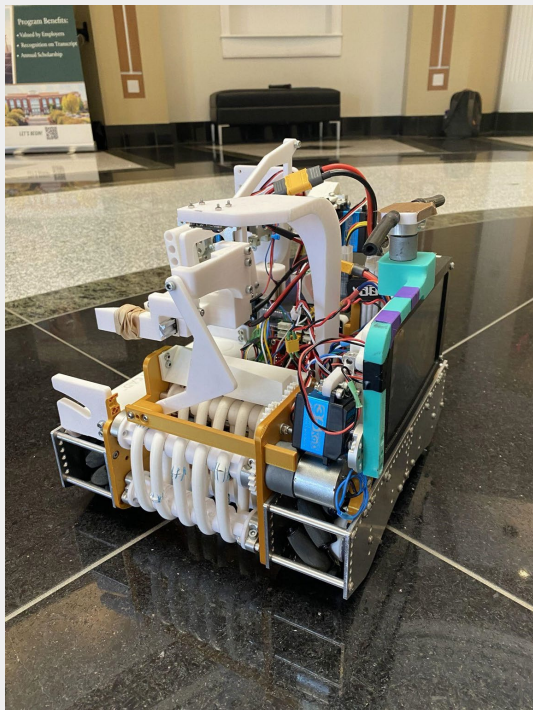


# We Hate Serial: Experiments using CAN-FD as a transport layer for micro-ROS

Nitin Chandrasekhar and Philip Smith

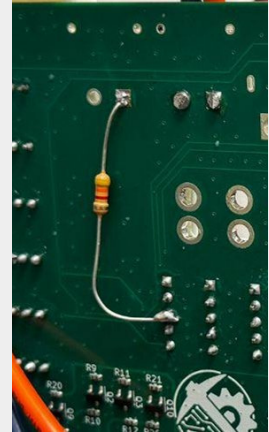


# Background



# Why Not serial?

- Lack of multiple devices per Tx/Rx port
- Issue since we want the capability for 8+ devices
- Requires Processing power on the Agent for edges to communicate
- Issues with serial in the past
  - Featuring the magic pullup resistor that basic micro recommended we add, that everyone thought should make the whole thing not work but somehow did?



# Why CAN-FD?

- Multi-Device support
- Edges can talk to each other
- Priority based messaging
- Excellent Noise Rejection
- High bandwidth and speed

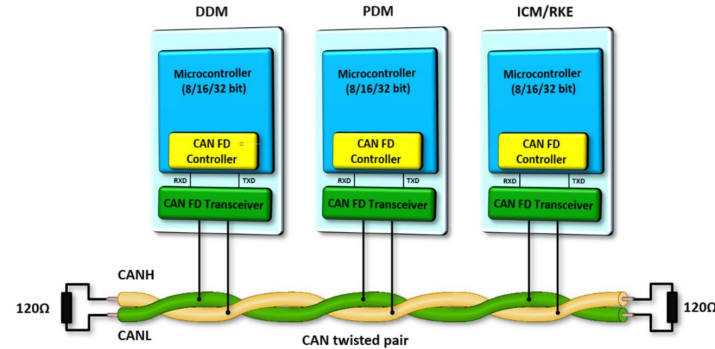
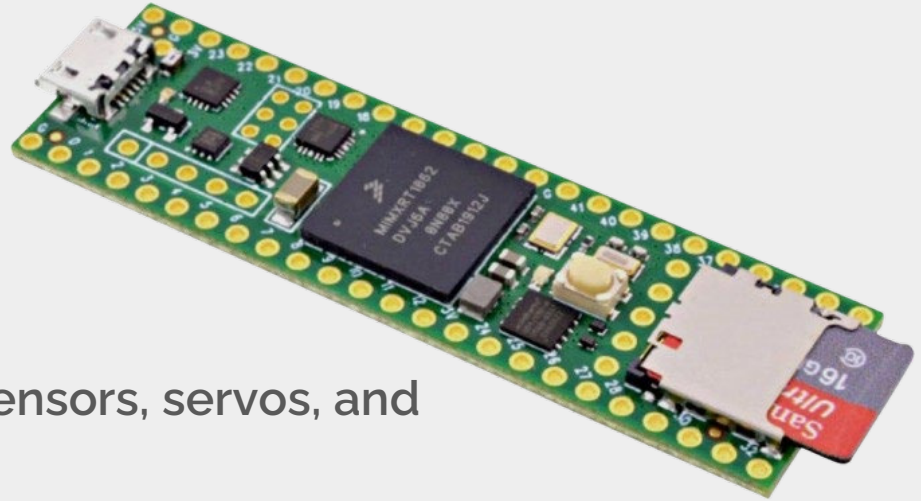


Image credit:  
<https://mu.microchip.com/designing-and-implementing-a-can-fd-network>

# Why Teensies?

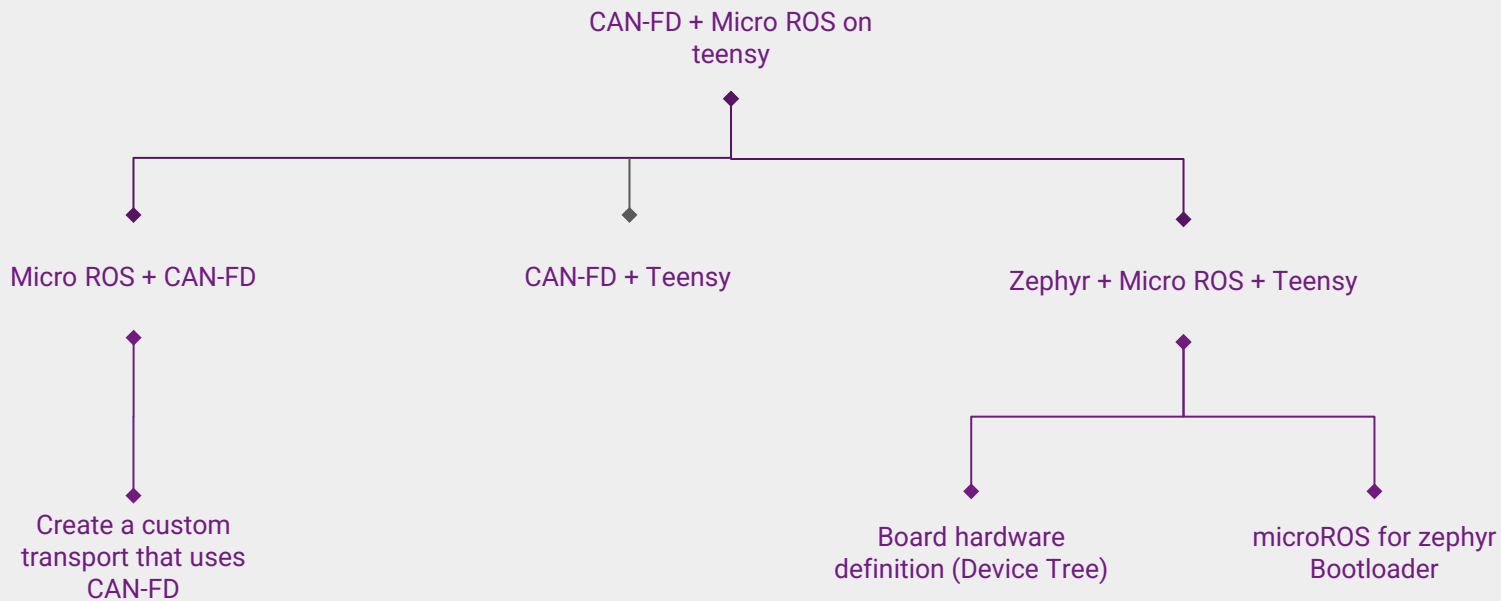
- CAN-FD controller
- Decently small
- Cheap micro controller
- LOTS of I/O options for sensors, servos, and motor controllers
- Clock rate is really high (600 MHz)



# What is zephyr? (and why are we using it?)

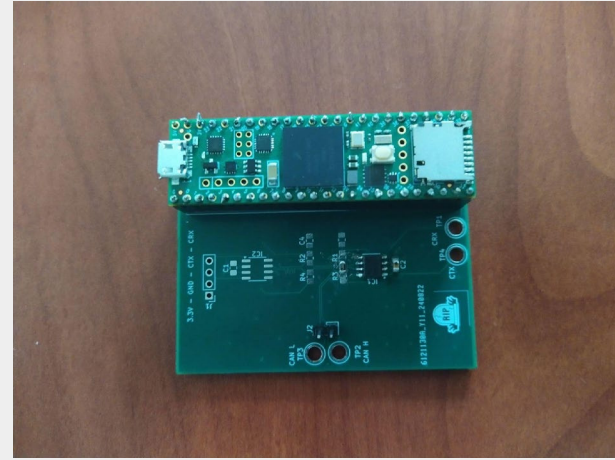
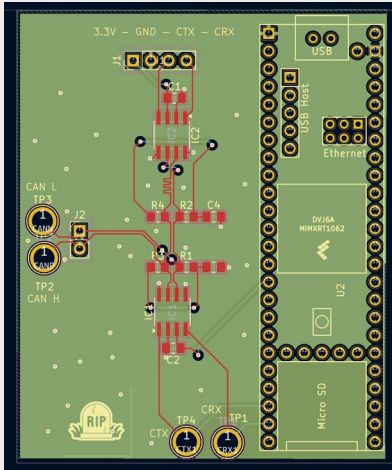


# Steps required



# CAN-FD and teensy

- Need a can Transceiver
  - Using
- Designed a PCB test board



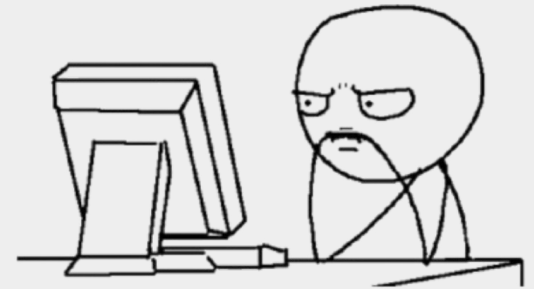


# Zephyr + Micro ROS + Teensy



# Results / Whats working rn?

Github repo \



I don't need  
**SLEEP**  
I need  
**ANSWERS**