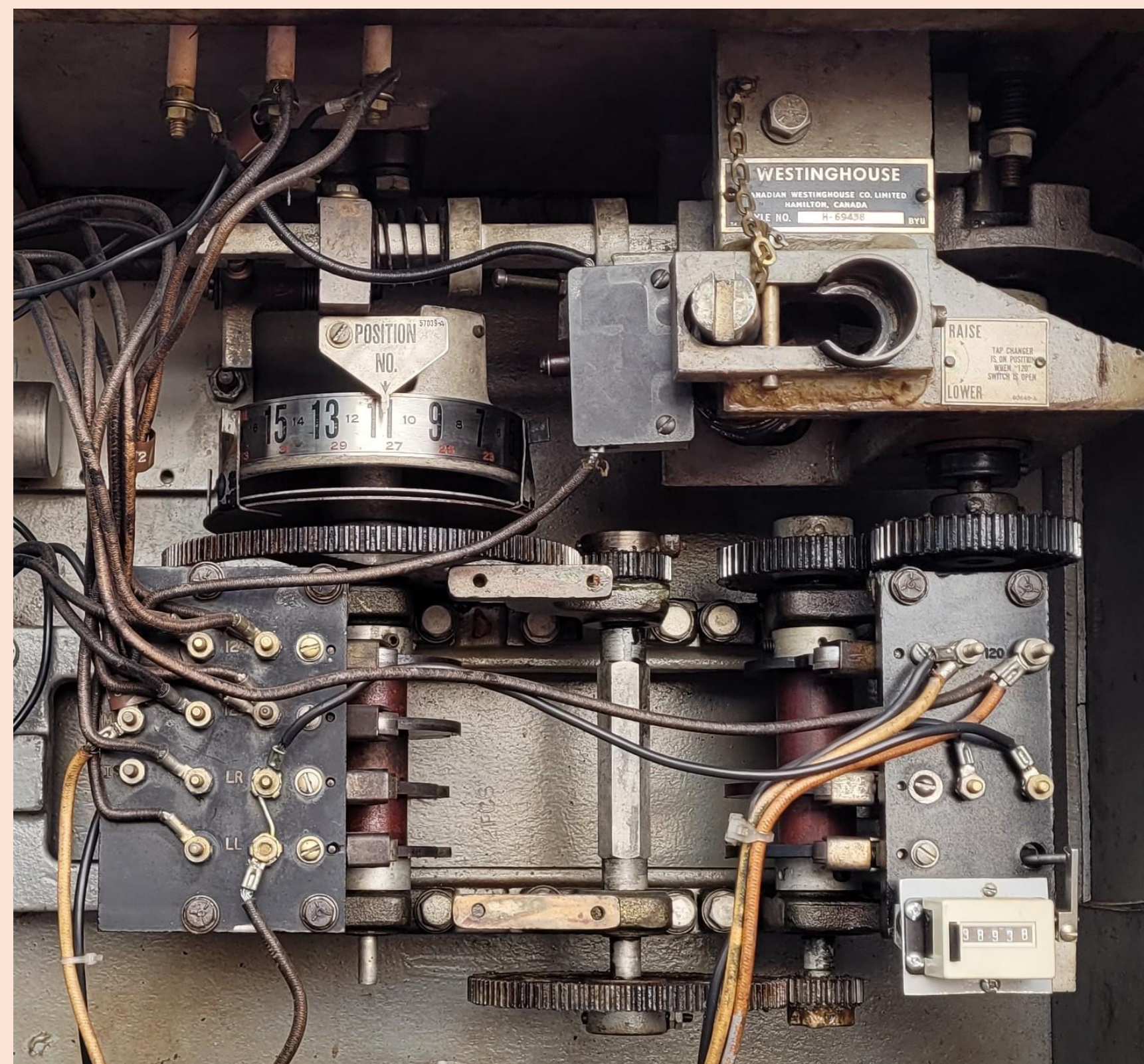


Tap Changer Position Monitoring System

Justin Woloshin & Brennan Rotelick

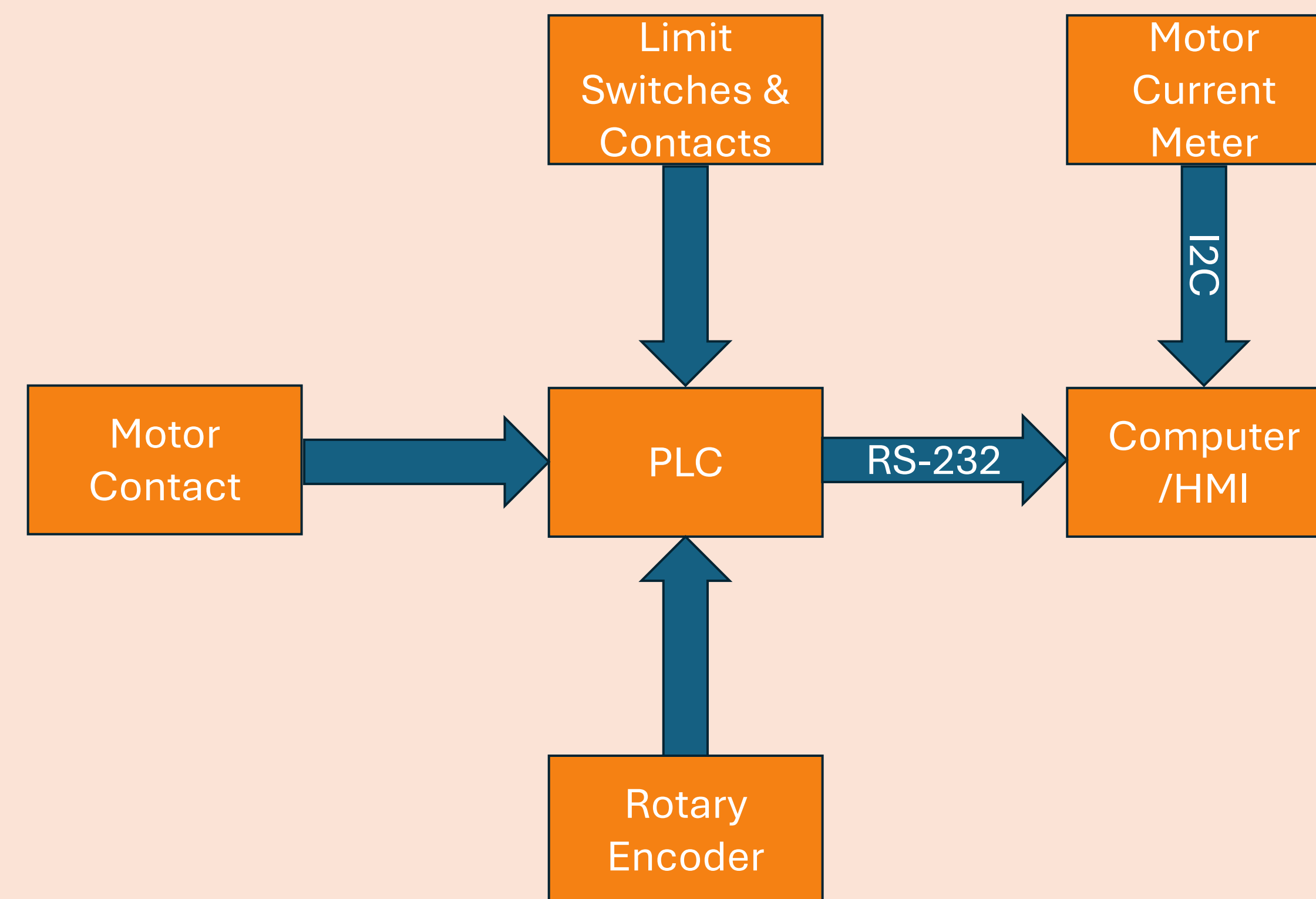
Project Definition

- Many utility transformers lack remote tap indication
- Obtain position information from tap changer
- Monitor motor current
- Communicate data to station computer
- Display tap position and motor current



Thanks to:
Nick Dietrick (SaskPower)
Stockdales Electric Motor Corporation
Slawek Sztajerowski (Panasonic Automation Canada)
Shermco Industries
Doug Wagner

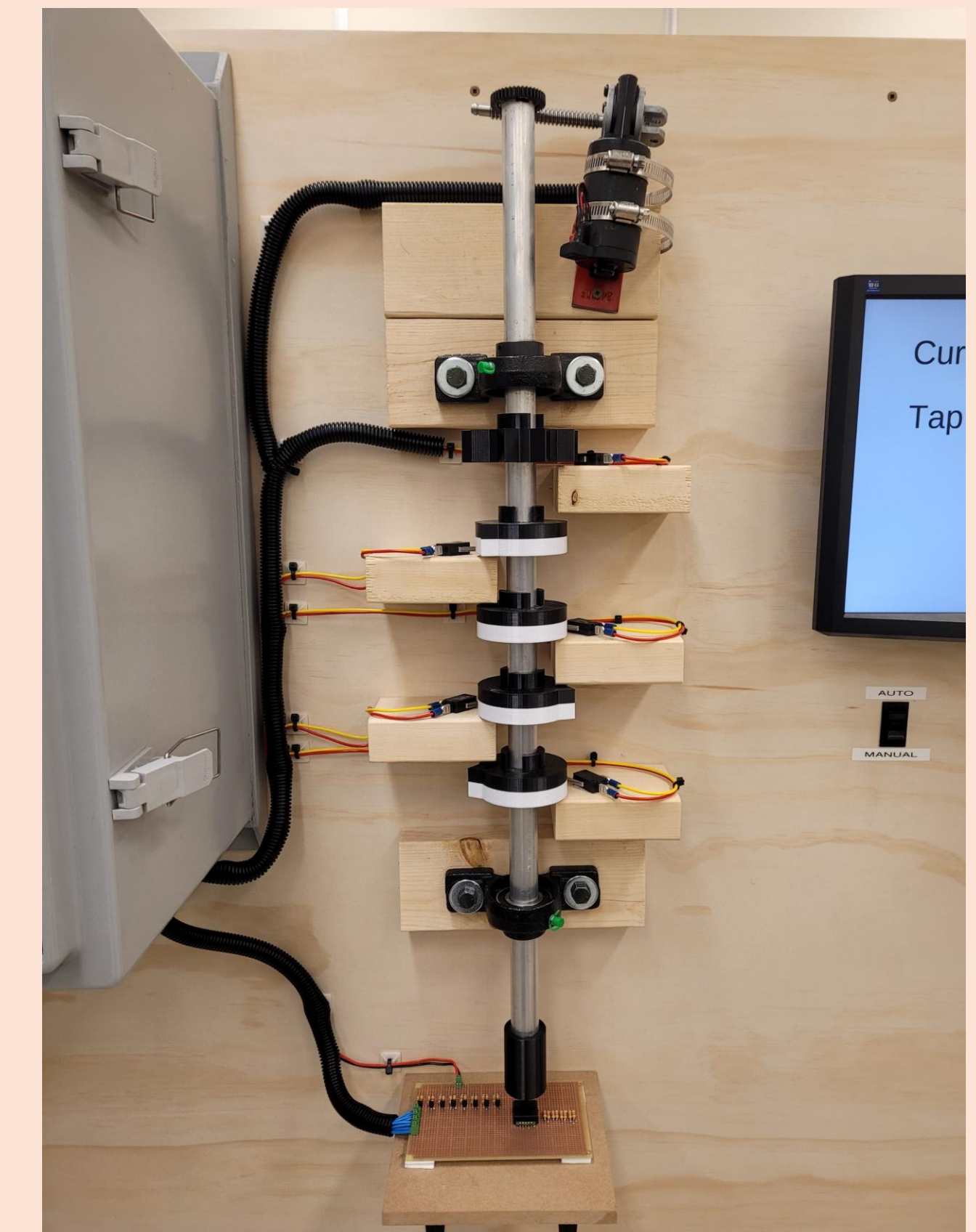
Design Approach



- Couple a rotary encoder to the position indication shaft for direct position reading
- Use custom logic to interpret position from contacts within the tap changer
- Use Panasonic FP-X C60R PLC to collect and transfer sensor information to computer via RS-232 protocol
- Use digital wattmeter (I2C) to obtain DC current from motor and send data to computer
- Use Raspberry Pi Zero 2w single board computer to receive and display tap position and motor current on HMI

Design Outcomes

- Modular
- Can be fitted to any legacy system
- Easily scalable
- Cost effective
- Simple design allows for easy installation during a planned outage



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