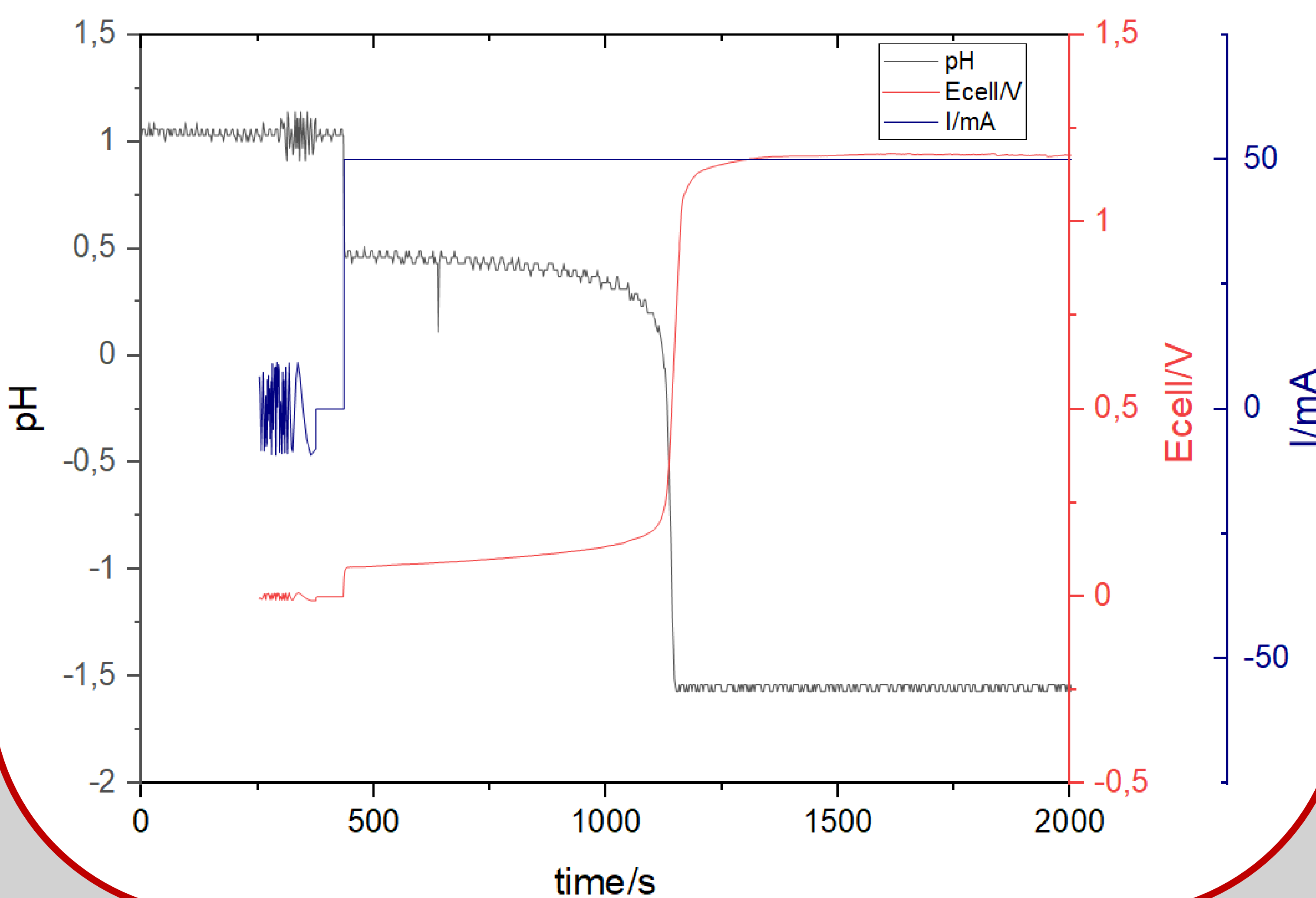


Background & Aims

- All Iron Redox Flow Batteries (IRFBs) are highly scalable and affordable stationary battery systems
- System efficiency is depending on Iron plating reaction at the negative electrode
- Hydrogen evolution is the main side reaction and can be mitigated by pH monitoring and active pH control
- Arduino-based pH monitoring system for lab scale test systems are flexible, affordable and expendable

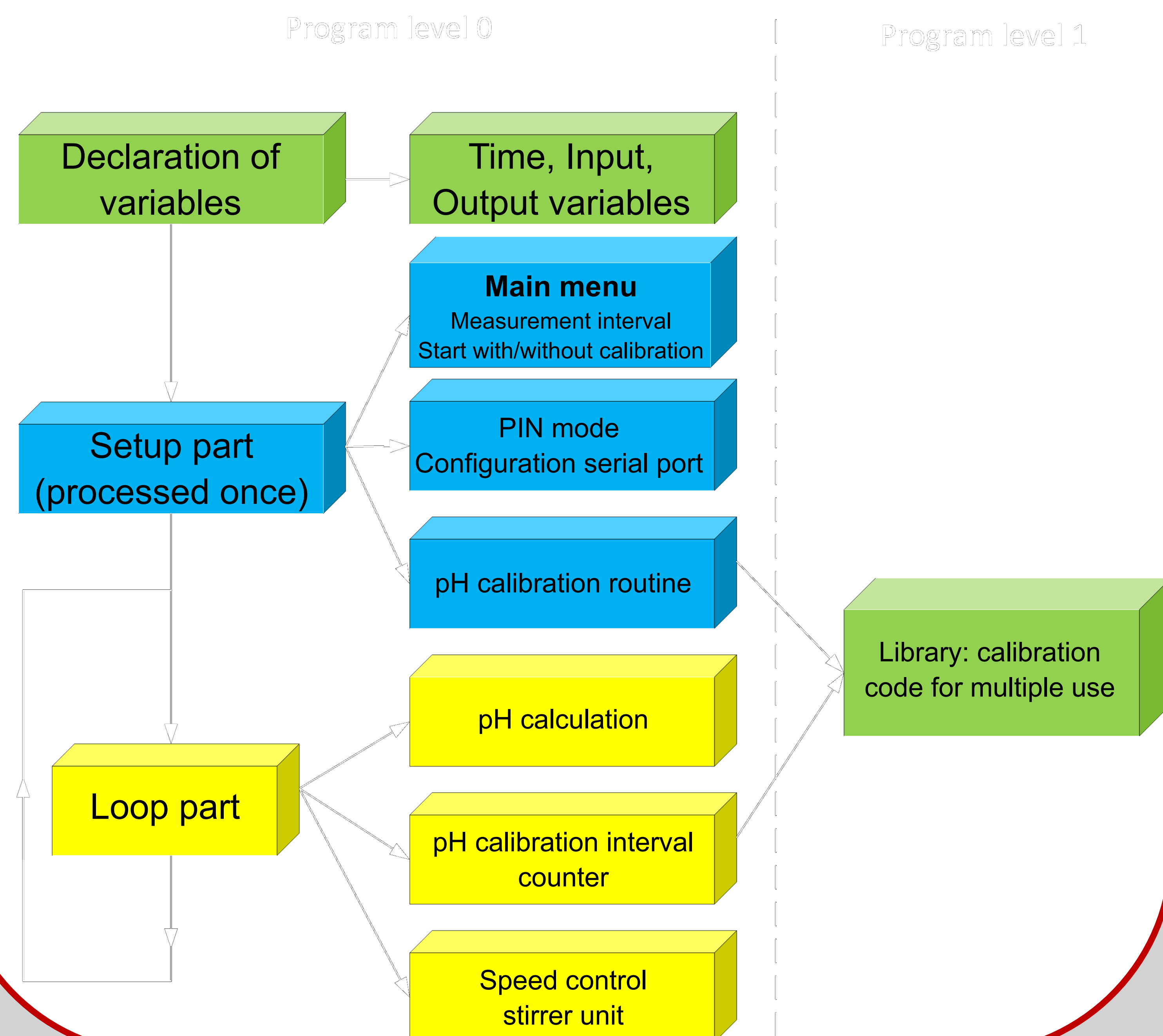
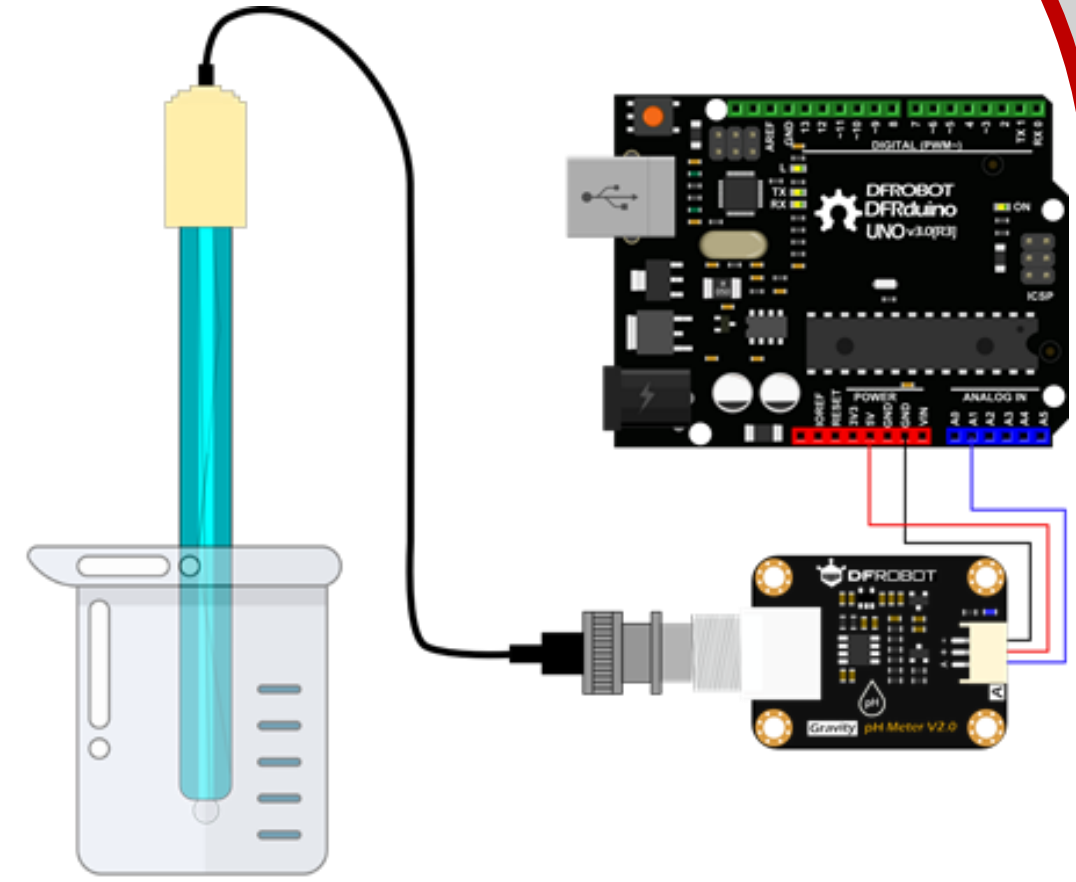
pH Measurements

- pH of the negative electrolyte is measured in reservoir
- Polarization of the pH probe is observed during charge/discharge cycles of the battery



Arduino Setup

- Gravity Analog pH Sensor/Meter Kit V2 (DFRobot)
- Arduino MEGA, connected to PC via USB, custom program code
- Data recording via serial monitor



Current Work & Outlook

- Arduino program code rewritten from scratch to allow the implementation of additional features, e.g. temperature sensor, pH control system
- Battery powered, autonomous Arduino system to be tested to prevent polarization

