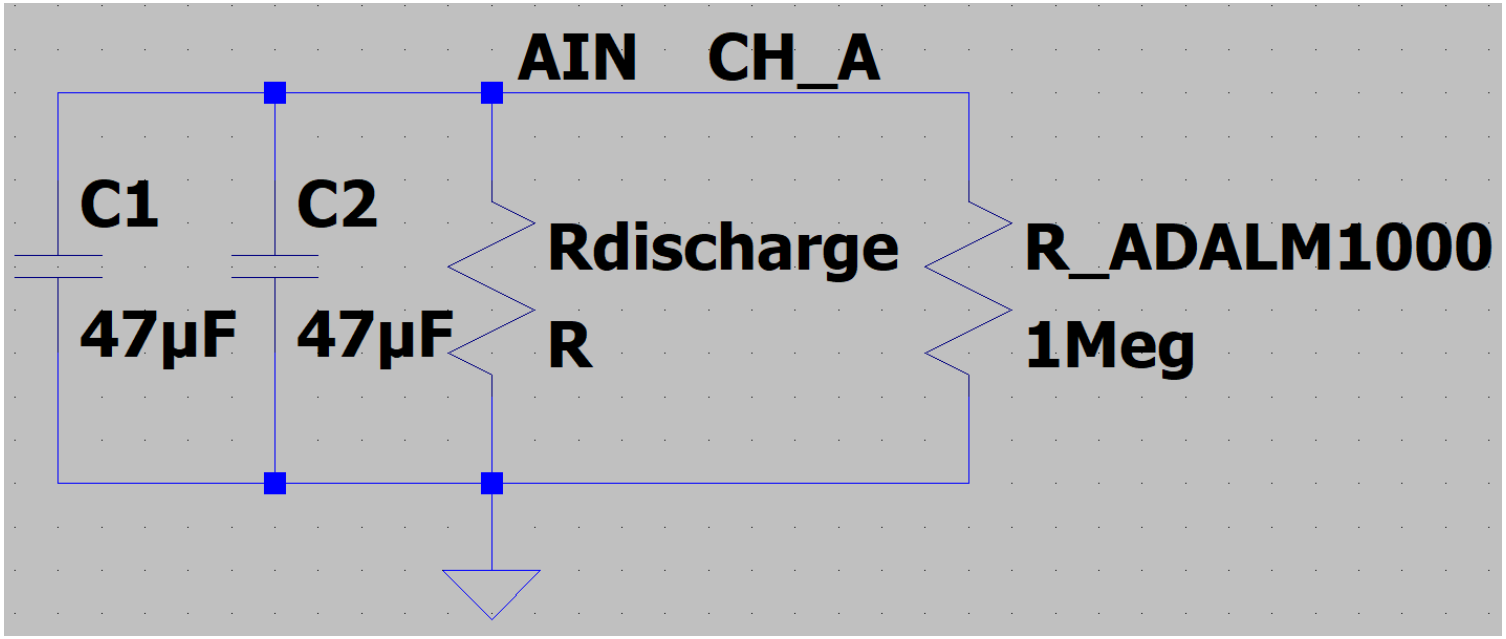
RPI HKN ECSE Honor Society

ECSE 1010 M1K Mentoring

Topic: Discharging Parallel Capacitors

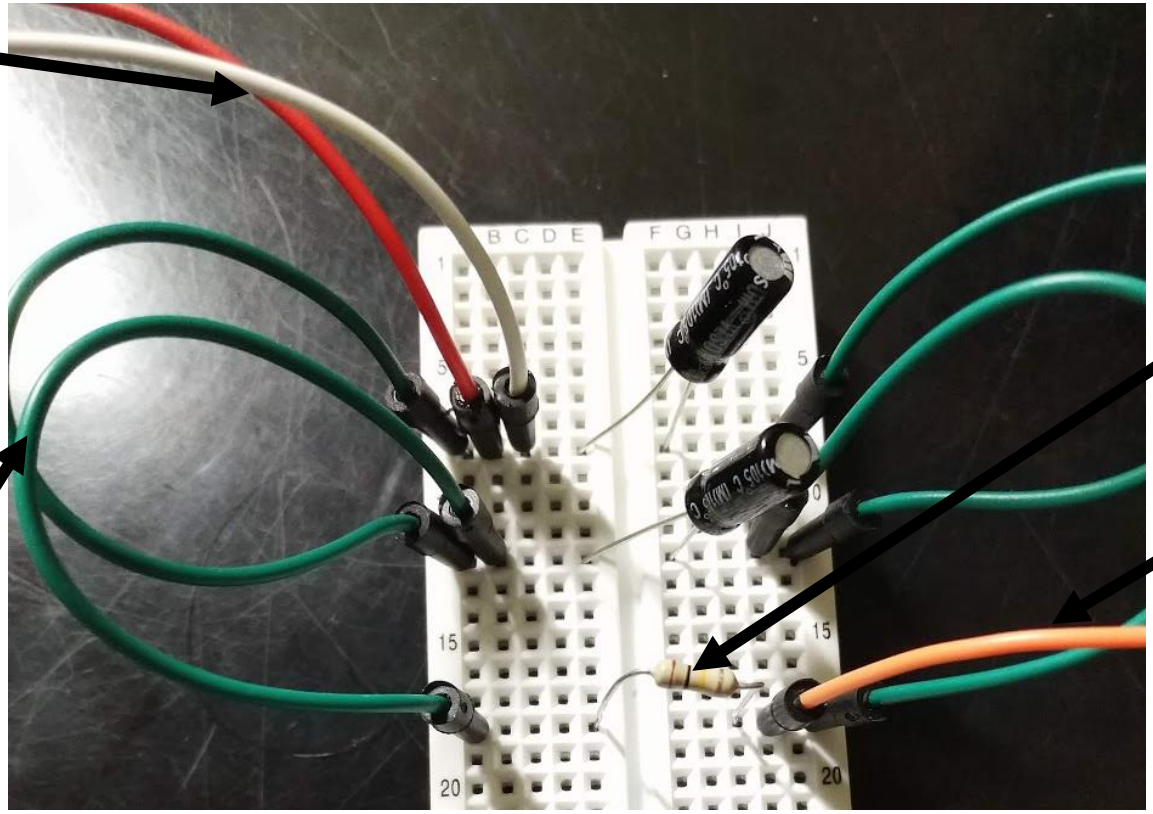
Circuit Setup

Time Constant τ = RC = 10ms, 1s, 10s; R = ?



Experimental Setup

AIN and CH A wires (Red & White)



Connection wires (Green)

Rdischarge eg: 100Ω

GND (Orange)

Data Collection

- Open Alice Data Logger tool
- Set a 5V CH A source
- Select “Log to file” option (for later)
- After a few seconds, turn CH A off
- Should see capacitor discharge
- What happens at τ, 5τ?

MATLAB Analysis

- Open the collected data
- File can be found: C/ALM_Software/M1K/StripChart.csv
- Trim your data points
- Import the csv into MATLAB
- Plot your data!
- Try comparing with calculated voltage values: $V(t) = V_0 e^{-t/\tau}$

MATLAB Analysis