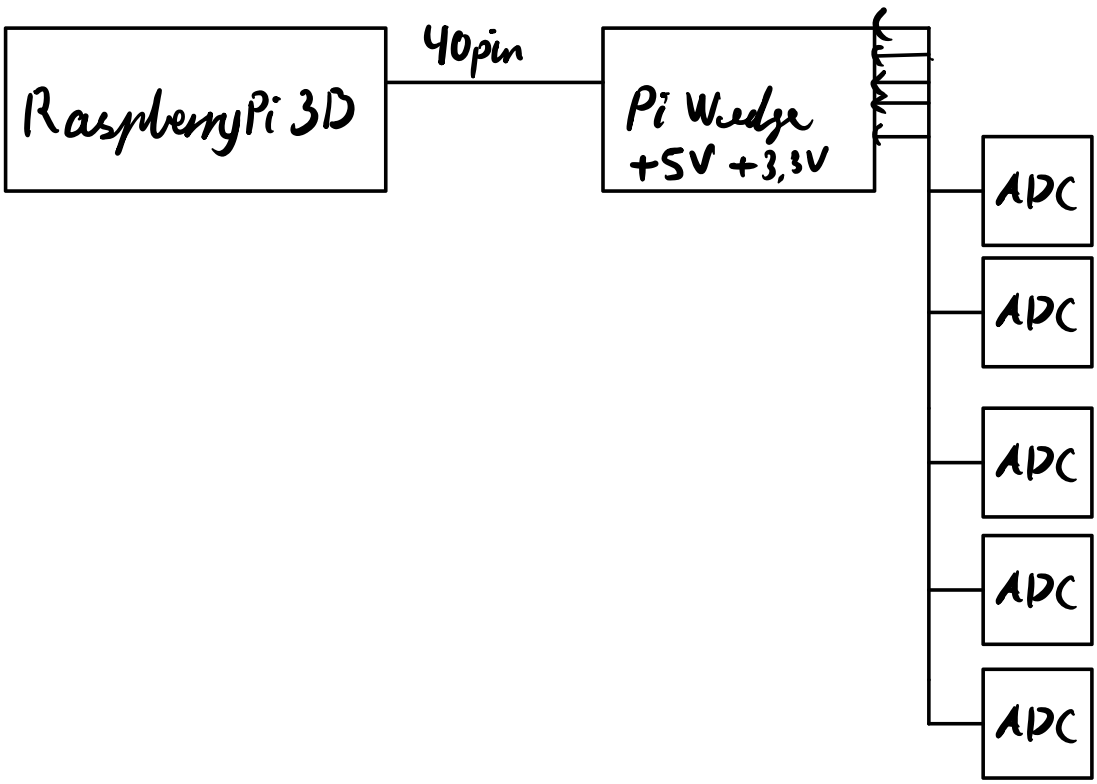
2.1

1)



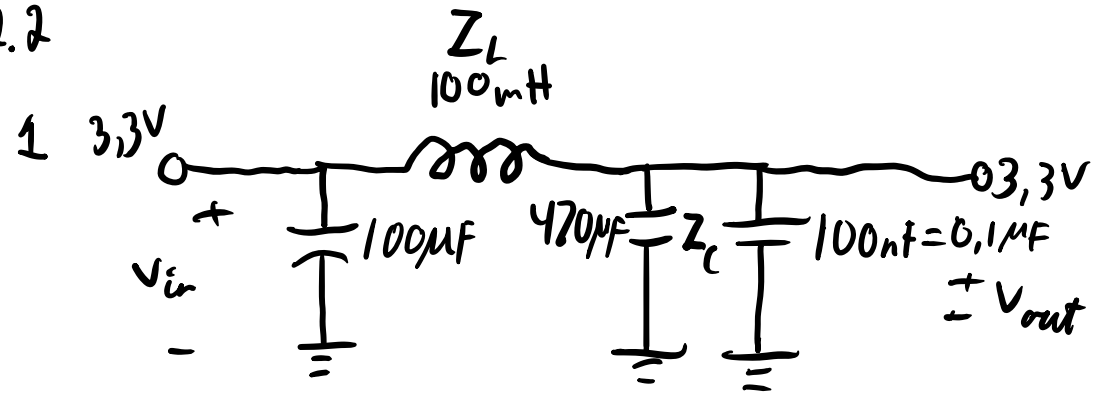
2) a) 16 samples

b) $\frac{3,3V}{2^{12}} \approx 0,8\ mV$

c) $\pm 0,6V$

3) Fordi den kan vi parallellisere. Dvs. kjøre alle ADC-ene samtidig, men det blir mye kompleksitet

2.2



Siden $470\mu F >> 100nF$

Får vi transferfunksjonen

$$H(\omega) = \frac{V_{out}}{V_{in}} = \frac{Z_C}{Z_L + Z_C}$$

$$= \frac{\frac{1}{j\omega C}}{j\omega L + \frac{1}{j\omega C}} = \frac{1}{1 - \omega^2 CL} = \frac{1}{1 - 470\mu F \cdot 100nH\omega^2}$$

$$10^{-4} \cdot 10^{-7}$$

$$= \frac{1}{1 - 47\mu s \cdot \omega^2}$$

$$H(f) = \frac{1}{1 - 2\pi \cdot 47\mu s \cdot f^2}$$

Knekkfrekvens: $\frac{1}{2\pi\sqrt{LC}} = 23Hz$