Day 1- measure lung capacity (thought of doing using a spirometer)

Exhale rate measurement(too hard)

Heart rate measurement(everybody doing)

Breathing pattern

day 2- how to measure? (where to keep the sensor)(thought of using it as a belt around the waist )

What sensor to use? (capacitive pressure/strain sensor)

Day 3- got the readings using an arduino .implemented a code and got a rough output wave form of a breathing pattern. Lot of noise was present in the output wave form.

Day 4- as breathing is below 2Hz , implemented a 2nd order butterworth low pass filter with cutoff frequency nerly equl to 3Hz , then the output was obtained. It was much smoother than the earlier plot.

Used quantization to quantize the plot. Both plots were plotted on the same graph ,where the quantization error is clearly visible.