

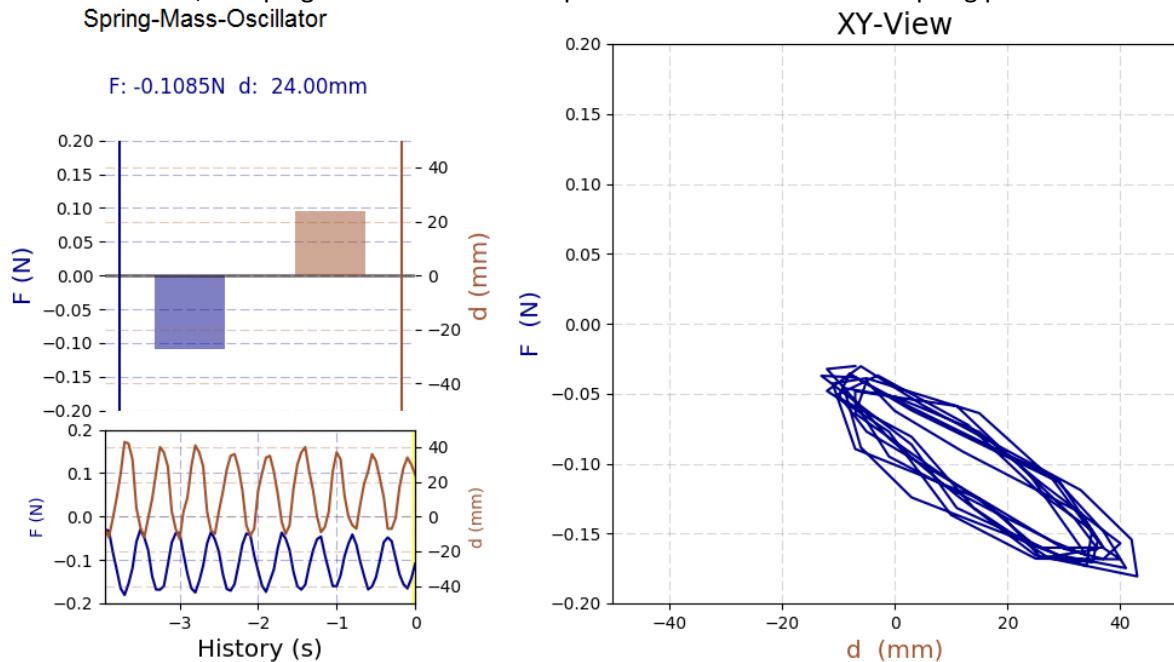
Spring and Mass Oscillations

PhyPiDAQ
Digital Measurement System Based on
Raspberry Pi



Objectives:

- Measure the displacement of a mass-spring oscillator by using the Time-of-Flight VL53L0X Motion Sensor and a precision Weighing Cell Sensor connected at the Raspberry Pi.
 - Use various graphical capabilities of the PhyPiDAQ-Software to visualize the displacement and the force graphs in real time as the hanging mass and the stiffness of the spring are varied.
 - Employ spreadsheets like LibreOffice or Excel to compute the period of oscillations, spring constant, damping constant and other quantities for different mass-spring pendulums.
- Spring-Mass-Oscillator



Experimental setup with the VL53L0X Distance Sensor and the high precision Weighing Cell Sensor connected to the ADS1115 convertor to visualise and record displacement-time, force-time and force-elongation graphs of an oscillating mass suspended on a spring.

Configurations:

-Configure the experiment and the ADS1115-convertor on the Graphical Interface of the PhyPiDAQ Software according to
[Mass-Spring-Oscillator.daq](#)
[VL53LxConfig_Oscillator.yaml](#)
[ADS1115Config_Oscillator.yaml](#)

Circuit Diagram

