Overview

The second homework (HW2) involves creating a lab report that covers task 3 from lab 08, where we investigated an object falling and bouncing from the balance plate. You can also include data from lab 07, but the main aim is to describe the falling object trajectory in sync with the force acting on the balance plate.

Find the best way to organize and plot the data and present it in an understandable way. Be reminded that clear and self-explanatory visualization of the data is as important as the technical content of the tasks in the report.
Don't forget to double-check that the report meets the formatting guidelines as well as takes into account previously given feedback.

Requirements for the report:

- 0.5p Document is correctly formatted and fits into max 4 pages.
- 1p Description of the problem that was investigated
- 1.5p Graphical items (schematics, pictures, etc.) that describe the experiment set-ups (the instruments and their connections). The readers should be able to reassemble and connect your setups only based on these items.
- 1p The hardware & software that was used for the task are given and include manufacturer/part number/version where applicable.
- 4p. An annotated graph (self-explanatory with its caption) that:
    - clearly delivers the idea of an object bouncing from the scale plate;
    - compares the data from the strain gauge readings and the falling object's position from the camera (along the axis of gravity), highlighting any characteristic features and differences between the two methods;
    - demonstrates synchronization between two datasets by bringing out the lead/lag times;
    - Per minimum, the graph should contain annotations for: the time of impact, and trigger position. Other annotations may be needed to render the graph self-explanatory.
- 2p Description of considerations and choices in assembling the graph above
    - Translation of camera image array into coordinates (in a programming language of your choice)
    - Triggering and thresholding
    - Single-sample-level synchronization of two datasets (camera and strain gauge)

Uploading the homework

Upload the report in a **pdf** format using the following naming pattern:

- **FirstName_LastName_HW2_report.pdf**

Make sure your **portfolio** contains:

- the original measurement data (.txt, .csv, ...) that was used in the report;
- any VI-s or other source code that was created to acquire or process the data.