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Simple Harmonics Motion experiment based on LabVIEW interface with Arduino

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In this work, we developed an innovative physics lab apparatus that is modern, cheap and simple. The ultrasonic sensor was used to measure the position of a mass attached on a spring as a function of time. The data acquisition system and control device were developed based on LabVIEW interface with Arduino. The experimental was designed to explain the simple harmonics motion similar to the wave propagation. The simple harmonic system (mass and spring) was observed and the motion can be realized using curve fitting to the wave equation in Mathematica. We found that the spring constants provided by Hook's law and the wave equation fitting are in good agreement.

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