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Demonstrating a Relationship of Frequency and Weight with Arduino UNO and Visual Basic Program

Authors : Woraprat Chaomuang, Sirikorn Sringern, Pawanrat Chamnanwongsritorn, Kridsada Luangthongkham

Abstract : In this study, we have applied a digital scale to demonstrate the electricity concept of changing the capacity (C), due to the weight of an object, as a function of the distance between the conductor plates and the pressing down. By calibrating on standard scales with the Visual Basic program and the Arduino Uno microcontroller board, we can obtain the weight of the object from the frequency (f) that is measured from the electronic circuit (Astable Multivibrator). Our results support the concept, showing a linear correlation between the frequency and weight with an equation y = –0.0112x + 379.78 and the R2 value of 0.95. In addition, the effects of silicone rods shrinkage, permittivity and temperature were also examined and have found to affect various graph patterns observed.

Keywords : Arduino Uno board, frequency, microcontroller board, parallel plate conductor
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