ABSTRAK

PENGUKURAN KECEPATAN BUNYI DI UDARA MENGGUNAKAN SENSOR BUNYI BERBANTUAN *LOGGER PRO* DAN *MICROPHONE CLIP MV*-01 BERBANTUAN *AUDACITY*

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Telah dilakukan penelitian pengukuran kecepatan bunyi di udara pada suhu ruangan menggunakan sensor bunyi berbantuan *Logger Pro* dan *microphone clip MV*-01 berbantuan *Audacity*. Untuk sensor bunyi berbantuan *Logger Pro* diperoleh grafik FFT, yaitu grafik hubungan amplitudo terhadap frekuensi. Sedangkan menggunakan *microphone clip MV*-01 berbantuan *Audacity* diperoleh grafik hubungan taraf intensitas bunyi terhadap frekuensi. Hasil analisis grafik diperoleh nilai frekuensi dasar. Nilai kecepatan bunyi ditentukan dari hubungan panjang pipa akrilik dan frekuensi dasar. Berdasarkan hasil penelitian, nilai kecepatan bunyi di udara pada suhu ruangan menggunakan sensor bunyi berbantuan *Logger Pro* diperoleh nilai kecepatan bunyi sebesar $(344 \pm 5)\ \mathrm{m/s}$ dengan persentase kesalahan 0,6 %. Sedangkan menggunakan *microphone clip MV*-01 berbantuan *Audacity* diperoleh nilai kecepatan bunyi sebesar $(353 \pm 11)\ \mathrm{m/s}$ dengan persentase kesalahan 1,9 %.

Kata kunci : Kecepatan bunyi di udara, frekuensi dasar, sensor bunyi, *microphone clip MV*-01, *Logger Pro*, *Audacity*.

ABSTRACT

MEASUREMENT OF SOUND SPEED IN AIR USING SOUND SENSOR ASSISTED LOGGER PRO AND MICROPHONE CLIP MV-01 ASSISTED AUDACITY

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Research has been done to measure the speed of sound in air at room temperature using a sound sensor with Logger Pro assistance and microphone clip MV-01 with Audacity assistance. For sound sensor assisted by Logger Pro the graph of FFT, namely the graph of the relationship between amplitude and frequency. Meanwhile, using a microphone clip MV-01 assisted by Audacity, a graph of the relationship between sound intensity and frequency was obtained. The results of the graphic analysis obtained the value of the fundamental frequency. The value of the speed of sound is determined by the relationship between the length of the acrylic pipe and the fundamental frequency. Based on the research, the value of the speed of sound in air at room temperature using a sound sensor assisted by Logger Pro, the value of the speed of sound is $(344 \pm 3)\ m/s$ *with a percentage of error is 0,6%. Meanwhile, using a microphone clip MV-01 assisted Audacity, the value of the speed of sound is* $(353 \pm 6)\ m/s$ *with the percentage of error is 1,9%.*

Keywords*: Speed of sound in air, basic frequency, sound sensor, microphone clip MV-01, Logger Pro, Audacity.*