**Dr. MAHALINGAM COLLEGE OF ENGINEERING AND TECHNOLOGY,**

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**ELECTRONICS AND COMMUNICATION ENGINEERING**

**PORTABLE SELF-ASSESSMENT AUDIOMETER USING RASPBERRY PI**

**ABSTRACT**

People with hearing impairments often face irreversible damage. To determine the extent of hearing loss across different frequencies in each ear, a hearing screening test is used. However, traditional audiometers require an audiologist to conduct the test, which can be time-consuming and expensive for the individual. This study aims to create a new portable audiometer for self-assessment of hearing.The portable audiometer consists of a computer, Raspberry Pi 3 B+, patient response button, and headphones. Sound signals are delivered to the patient through the headphones, and the patient responds using the left mouse button.

Based on the patient's responses, an automatic audiogram is generated, showing the relationship between frequency and intensity, which indicates the volume of sound pressure.The results, including the audiogram and raw data, are saved in CSV files named with the time and date of the test. The efficient Hughson Westlake procedure, which is less time-consuming, is implemented in Python, a popular open-source programming language, to obtain the audiogram. Using Python helps reduce software development costs.

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