Patent Search

Invention Title	LOW-COST DEVICE FOR MEASURING TRANSPORT PROPERTIES OF POROUS MATERIAL
Publication Number	51/2020
Publication Date	18/12/2020
Publication Type	INA
Application Number	202041054231
Application Filing Date	14/12/2020
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	BIO-MEDICAL ENGINEERING
Classification (IPC)	A61B3/10

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Abstract:

The porous material used for the acoustic application needs to characterize prior to knowing its sound absorption capability. There are acoustic prediction models to sound absorption coefficient; among those models, the Johnson Champoux Allard model is widely used, which demands intrinsic properties as Porosity, Flow resistiv Tortuosity, Viscous, and Thermal characteristic length. To find out the above parameters requires a dedicated test setup out of which Tortuosity test setup is costlier, affordable by many of the laboratories. Outwit this problem; a low-cost test up is developed with simple design and ease of use. It works on the principle of transmis taken for signal reach from transmitter end to receiver end with and without porous material. The ratio of time taken for with sample to the time taken without samp value of Tortuosity. Also, this device can be easily-portable and useful in a variety of applications.

Complete Specification

1) The proposed low cost device comprising of ultrasonic transducer, Arduino Uno, Micro SD module are fixed in fabricated test setup to find Tortuosity value of po material using principle of transmission.
2) An ultrasonic transducer as claimed in claim 1 range from 16 Hz to 40 kHz kept at a distance of 15 cm for accurate calculation.
3) An Arduino Uno microprocessor as claimed in claim 1 can be chosen from group consisting Raspberry pi, NodeMCU and other microprocessor.
4) Porous material as claimed in claim 1 wherein chosen from group of materials from natural, synthetic, ferrous and non-ferrous.
5) Principle claimed in claim I can also use principle of reflection.

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