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ABSTRACT

Design and Development of mini Universal Testing Machine (mini UTM)

Sami Atawneh¹
Al-Quds University¹

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It's a development of Mini Universal Testing Machine for Small Scale Materials that have a destructive way to calculate the tensile strength of small size scale materials. This development is an important test that can be used to measure the tensile strength of small scale materials such as Natural Fibers, Synthetic Fibers, Papers, Wires, Polymers, and Human Hair. It is based on moving a slider table that has a tensile on the material settled between clips gauge. The load cells give a reading, and this reading is converted to digital data that is controlled by the PC. Its user-interface provides features for the complete real-time measurement, control, data processing, output results display, report printing and other functions. The device component design is involved in the mechanical, electrical, software design and extensive stress analysis. Testing using materials with known properties was conducted in order to calibrate the system and verify the design.

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Correspondence concerning this article should be addressed to Sami Atawneh at Al-Quds University.

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E-mail: palstudent@alquds.edu

Palestine, Abu Dis, Al-Quds University