

## Design and Fabrication of a Moist Heat Therapy Device for Treating Non-specific Low Back Pain

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**Abstract:** *In this paper, the design and fabrication of an electronic moist heat therapy device is described for administering heat therapy treatment for non-specific low back pain (LBP). The device which is handy and low weight, incorporates low cost components such as a PIC16F microcontroller, a potentiometer to manually adjust voltage supply to the heater, a temperature sensor, a seven-segment display, a 12VDC power supply, and a heater component made up of a number of serially connected ceramic sealed resistors. In addition to these components, the device also incorporates a Bluetooth feedback system for temperature management through a third party electronic device like a mobile phone. Initial results obtained from the device show its advantages over the use of traditional hot water bottles which temperature cannot be regulated. The device is capable of maintaining target temperature required for effective heat therapy for non-specific LBP, without any concerns of heat loss or subsequent fall in temperature.*

**Keywords:** *Non-specific low back pain, moist heat therapy, Microcontroller, potentiometer, Bluetooth, and ceramic sealed resistors*