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Pressure sensing device for diabetic foot ulcer monitoring

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Design of pressure sensing circuit and related parameters are discussed in this paper. Patients with diabetic often lose pain in their feet, resulting in inadequate pressure under their feet. A circuit is proposed to measure the pressure on the foot with the help of force sensing resistor. The objectives of the research are design and fabricate a hardware component that has the capability to measure foot pressure during gait, implement a method to transmit sensor values to a device wirelessly and display sensor data in real time. The sensor acquires the pressure on the foot and the first metatarsal, the fifth metatarsal, the mid foot and the heel were considered as the main pressure points of foot. Four-layer type Force Sensitive Resistors, microcontroller, blue tooth device and lithium polymer battery was connection were kept under the rubber slipper and data was recorded. The calibrated instrument tested for different weight raging from 49 kg to 96 kg. The result indicate that the instrument give accuracy value in the range of 60 kg to 80 kg. The data were transfer through blue tooth device connected the patient mobile phone. The device is recommended for diabetic patient with similar weight range.

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