

# Complete Offloading Cushion for Wheelchair Bound Patients

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Mobility compromised patients are at risk of developing pressure ulcers due to non-ideal interactions with the surfaces they are resting upon. This project aims to mitigate the onset and development of pressure ulcers in wheelchair bound patients. A cushion capable of controlling surface pressure was developed. The cushion detects local pressure magnitude through pressure sensors distributed on its surface and inflates/deflates to alleviate damaging levels of pressure to the patient's skin. Pressure exerted on the body should be no more than 80 mmHg. Foam was chosen to reduce friction. A micro air-pump was chosen to distribute air into and inflatable bladder altering its volume, this in return impacts the surface pressure. A custom program and circuit controls all elements of the system. By controlling the effect of shear and pressure on patients' skin we will be able to reduce damaging effects and the risk of pressure ulcer development.