



## CuraMat – Pressure Detection for a Medical Environment

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### Pressure Detection for a Medical Environment

Decubitus ulcers, also known as bedsores, are a common problem for many long-term hospital patients. They are primarily caused by the constant application of pressure to patients' bodies during their extended stays at the hospital. The responsibility of preventing these ulcers lies solely with the hospital, so insurance companies do not cover the incurred costs. This places a heavy financial burden on hospitals. Furthermore, other than flipping patients over every few hours—an imperfect prevention method that inconveniences nurses and other hospital personnel—there is no official procedure for preventing bedsores. Our product, the CuraMat, is designed to change this by providing hospitals with a way to accurately track and record the applied pressure on a patient. This will allow hospitals to more efficiently monitor patients in the hopes of better understanding Decubitus Ulcers.

The CuraMat consists of a 3'x2' pressure mat, control unit, and java application. The pressure mat is thin, light, and flexible. This design is ideal for hospital beds because thick and heavy mats could possibly increase the formation of bedsores. The mat is placed on the hospital bed so that it covers the lower back down to the upper thighs—the problem areas of bed sore development. The control unit collects data from the mat and wirelessly sends it to the java application on the computer.

The application for viewing the data has a simple, intuitive, and easy-to-use interface allowing quick changes between viewing current pressure values and past stored data. The application tracks the pressure changes caused by the patient over time to better alert care providers of potential ulcer causing situations. It also displays a button for care providers to hit when a patient is moved to keep the data consistent.

Overall, the application is designed for simple and convenient medical professional usage—increasing both operational efficiency and potential usefulness. With long-term use, the CuraMat will help medical professionals understand the effect of pressure on bedsores and may potentially aid the development of new standards for treatment and prevention of Decubitus Ulcers.



While a patient is lying on a hospital bed, the CuraMat is reading pressure data, converting this data to digital values, and then sending the data wirelessly to a PC

