Microsensors Monitoring Devices Regarding the Rehabilitation Process Carried Out After Orthopaedic Surgeries of the Lower Limb

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Realizing that the rehabilitation monitoring and correction devices for patients going under orthopedic surgeries of the lower limb are quiet trivial, we decided to tackle the subject and try to help. Right now, it is mainly subjective to determine the stage of rehabilitation the patient is found in. In addition to that, the most common post-surgical medical recommendation is to walk with partial weight bare (meaning not to force their limb over the pressure limit). Since there have not been developed any means of quantifying this pressure while walking and performing daily life activities outside the hospital, the process often takes more time and might even involve complications. The basis of our project is the acknowledgement of the patients need to be monitored after orthopedic surgeries regarding the lower limbs • Our project is composed of: - a set of carpets with piezoelectric sensors embedded, in order to check and observe the initial pressure applied by the patient and the specific signal - a pair of two second soles with piezoelectric sensors, in order to observe and monitor the pressure applied by the patients after the surgery - an electronic part containing 2 Arduino UNO platforms, a LCD, a buzzer and 2 Bluetooth modules (HC-05 and HC-06) • The future plans for the project are: - Finalising an efficient final product, comfortable to wear and accessible to buy - Adding an external memory SD card to save the progress of the patient - Testing the product with the help of specialized doctors and in-need patients

Awards Won:

Fourth Award of $500