Knee prosthesis controlled by electromyographic signal

Diego Ortiz*, Daniela Zurita†, Alán Proaño† and David Ojeda*

* Ingenieria Mecatronica
Universidad Técnica del Norte
Ibarra, Ecuador
e-mail: dlortiz@utn.edu.ec

† Terapia Fisica
Universidad Técnica del Norte
Ibarra, Ecuador
e-mail: dazurita@utn.edu.ec

ABSTRACT

A knee joint prototype, controlled by electromyographic signals, is used. The project was divided in a mechanical part using the finite element method as a mechanical design implement. Abaqus (6.8) allows creating the interaction knee-socket, getting as a result a concentration of stresses on the knee mechanisms bases that do not exceed the material yield stresses.

On the other hand, the Multisim software by National Instruments was used on the electronic part to design and simulate the treatment of the signals that mixed during the process. In general, the knee prototype has a satisfactory performance. Afterwards, the model is manufactured and tested on a person with transfemoral amputation. As a result, it is believed that the prosthesis prototype designed provides a better quality of life to the person to whom it is implemented in.

REFERENCES

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