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QUALITY INSPECTION OF LEATHER USING NOVEL PLANAR SENSOR

A Thesis Submitted in Fulfilment of the Requirements
for the Degree of Master of Engineering (Research)

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"This dissertation is dedicated to my Family"

ABSTRACT

Value of leather produced from sheep is determined by its quality and looseness is one of the quality attributes that determines the value of the leather. As of now, looseness in sheep skin can be determined only after the tanning process is done and it is a long and expensive process to treat the looseness in skins after the tanning process. An interdigital sensor based sensing system has been developed which works on the principle of sensing technique based on interaction of electric field with the materials under test. Finite element software has been used for analysis and design of sensors. It has been reported that a good correlation was found between the actual looseness values and calculated looseness values.

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PUBLICATIONS

Below are the publications in conjunction with the authors Masters Candidacy:

Conference Publications

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2. V. Kasturi, S.C. Mukhopadhyay, G. Sengupta, “Interdigital Sensors: A Review of their Applications”, 2nd International Conference on Sensing Technology (ICST) Massey University, Palmerston North, New Zealand, November 26-28, 2007.
3. V. Kasturi, S.C. Mukhopadhyay, Y. M. Huang, “A Novel Bio-sensor for Non-invasive Sensing of Sheep Skin”, 4th Asia Pacific Conference on Transducers and Micro/Nano Technologies (APCOT 2008), National Cheng-Kung University, Tainan, Taiwan, pp. 251 – 254, 22 – 25 June, 2008.
4. A. R. Mohd Syaifudin, S.C.Mukhopadhyay and V. Kasturi, “Smart Sensing System for Health and Environmental”, Digital Signal Processing Creative Design Contest (DSP 2008), Southern Taiwan University, 29 November, 2008.

5. V. Kasturi, S.C. Mukhopadhyay, “Planar Interdigital Sensors Based Looseness Estimation of Leather “, 3rd International conference on sensing technology, National Cheng-Kung University, Tainan, Taiwan, pp. 462 – 466, Dec 1 – Dec 3, 2008.

Journal Publications

1. V. Kasturi, S.C. Mukhopadhyay, T. Allsop, S. Deb Choudhury, G. E. Norris, “Assessment of pelt quality in leather making using a novel non-invasive sensing approach”, Journal of Biochemical and Biophysical methods, Volume 70, issue 6, pages 809 – 815, 24 April, 2008.

Textbook Publications

Work is published in the Sensors book by Springer.

1. S. C. Mukhopadhyay, Y. M. Huang, “Estimation of Property of Sheep skin to Modify the Tanning Process”, Sensors: Advancements in Modeling, Design Issues, Fabrication and Practical Applications - Springer, pp. 91 – 112, July 2008.

Presentations

1. Participated in IEEE pacific zone seminar, December 2007.
2. Presented my research work at IEEE Postgraduate student presentation day, August 2008.

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