Project title

Fibre tear measurement

Aim

To develop a measurement method to detect and quantify paper fibre material on a plastic film surface. This method shall be used to measure the fibre tear effect on paper material for packaging of medical devices.

Background

In BillerudKorsnäs at Skärblacka paper mill, paper for making packages for medical devices is being developed and produced. When opening a medical device package in a hospital it is very important to not contaminate the sterile environment with loose paper fibre material. Good seal and peel properties are necessary, that involving a strong paper surface where no fibres are teared off. New paper products are being developed; requiring better methods to measure this fibre tear effect.
In a common type of medical device packages the paper is sealed to a transparent plastic film. To prepare for analyse of fibre tear, the seal between paper and plastic is peel opened. The measurement is made on the plastic part, determining how much paper fibre material that is stuck to the plastic film surface. One key factor for the new method is to be able to differentiate paper fibre fragments from plastic fragments in the film.

The thesis will be made for and together with BillerudKorsnäs, R&D Skärblacka.

Project plan

The work to be carried out will e.g. involve the following activities:

- Literature study of potential methods/hardware and selection of commercial available equipment
- Development of suitable software for analysis and classification of paper fibre material on a transparent plastic film surface, possibly with the implementation of machine learning.
- Implementation of software in combination with the hardware
- Evaluate the new method, comparing to old and to manual method
- Reporting

Time plan

- 30 hp/ECTS thesis work project. To be carried out autumn 2018, or spring 2019.
- Two part-time presentations (Literature study and experimental phase)
- One final presentation

Qualifications

Master in science and engineering (5 years) towards engineering physics, computer science or equivalent with interest in optical analysis and image processing.

Deadline for application

2018-10-15. Applications will be evaluated continuously and the project start-up will be as soon as an appropriate candidate has been found.

Location
University / BillerudKorsnäs Skärblacka paper mill. To be agreed.

Application
Candidates apply using BillerudKorsnäs application system by adding curriculum vitae, personal letter and grade certificates.

Contact person
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More information about BillerudKorsnäs can be found at: http://www.billerudkorsnas.com/