

AiF-Project

PrecisionCNCSeW

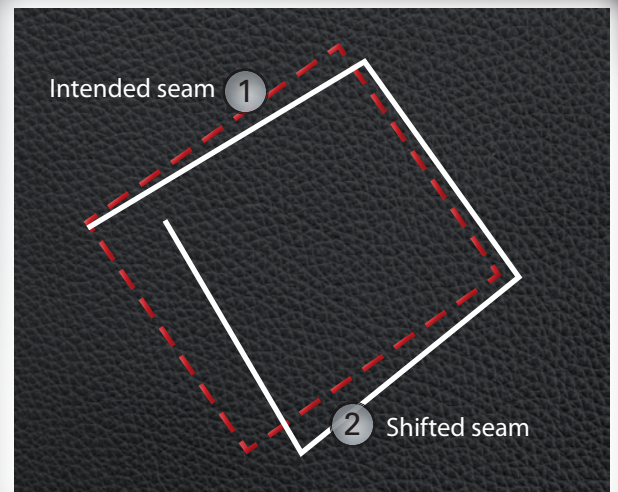
Reduction of manual programming effort during CNC sewing of seam patterns (e.g. with PFAFF 3590) by a VISION SYSTEM



Defined seam patterns and decorative seams are produced using CNC sewing technology. Due to the elasticity of thread and tissue materials, the stitches made by a computer program on a CNC sewing machine are shifted from their desired positions. The mismatch leads to a visually inferior appearance of the resulting thread pattern compared to the one intended by the manufacturer.

Targets:

- Reduce down times
- Less rejected items
- Higher productivity
- Maximum process safety



Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages



PFAFF® Industrial



RWTHAACHEN
UNIVERSITY

Das Vorhaben (19524 N) wurde im Rahmen des Programms „Industrielle Gemeinschaftsforschung (IGF)“ vom Bundesministerium für Wirtschaft und Technologie aufgrund eines Beschlusses des Deutschen Bundestages gefördert. Der Abschlussbericht kann am Institut für Textiltechnik der RWTH Aachen, Otto-Blumenthal-Str. 1, 52074 eingesehen werden.

Comparison of the actual and target process

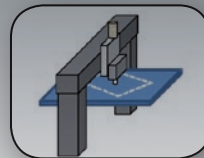
ACTUAL PROCESS (Duration: 2 Days)



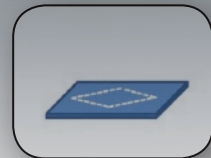
Manual inspection
of seam quality



Manual adaption of
the CNC seam pattern
through experience

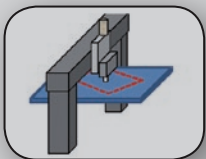


CNC Sewing with
adapted seam pattern



Final product with
higher quality

TARGET (Duration: 10 min.)



CNC Sewing of the
intended seam pattern.
The result is a shifted
seam pattern.



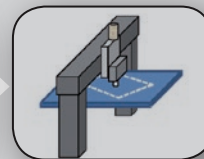
Image recognition of
the shifted pattern
with a camera



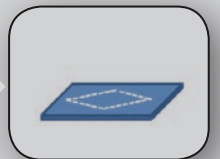
Image processing:
Overlapping of the
intended and shifted
seam patterns



Computing an adapted
seam pattern through
a correction algorithm



CNC Sewing of the
corrected pattern,
which leads to the
intended seam pattern.



Final product with
precisely positioned
seam