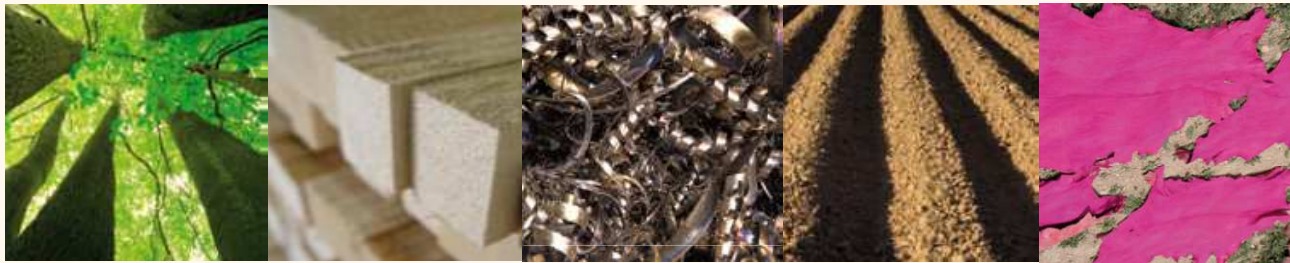


Textiles4Textiles



Contribution to
Closing the loop, Wormerveer
by Sander Jongerius, KICI the Netherlands and
Coordinator of the T4T consortium

15 November 2012.



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Creating value in the chain

- Identification and automated sorting increases the quality of regained fibres
 - Chemical composition: wool, cotton, polyester, acrylic, ..
 - Colour: can prevent necessity to re-dyeing the textiles saving cost and environmental impact
- ➔ This creates opportunity to make new textiles from post consumer textile waste = Textiles4Textiles



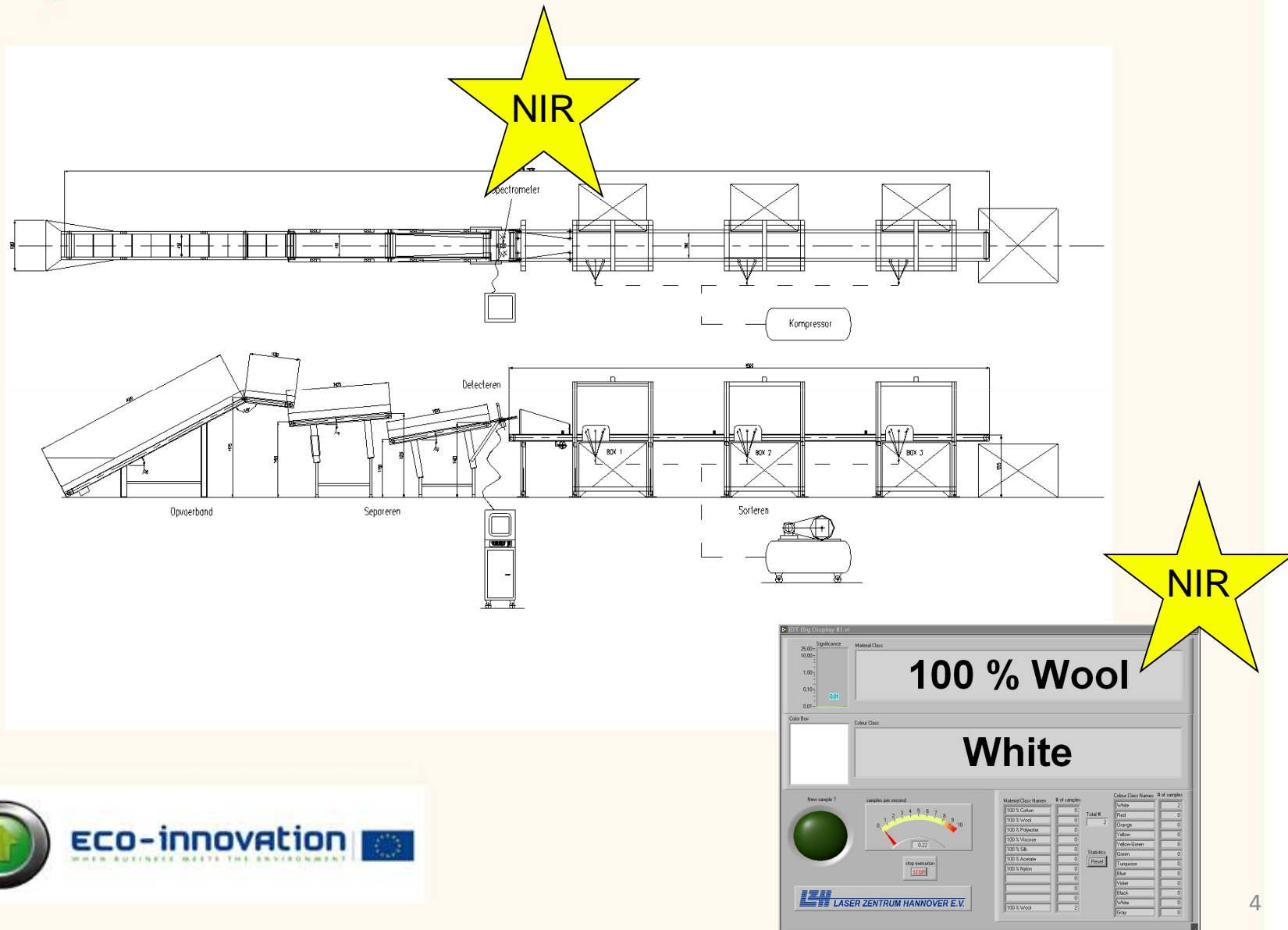


Goal Textiles4Textiles

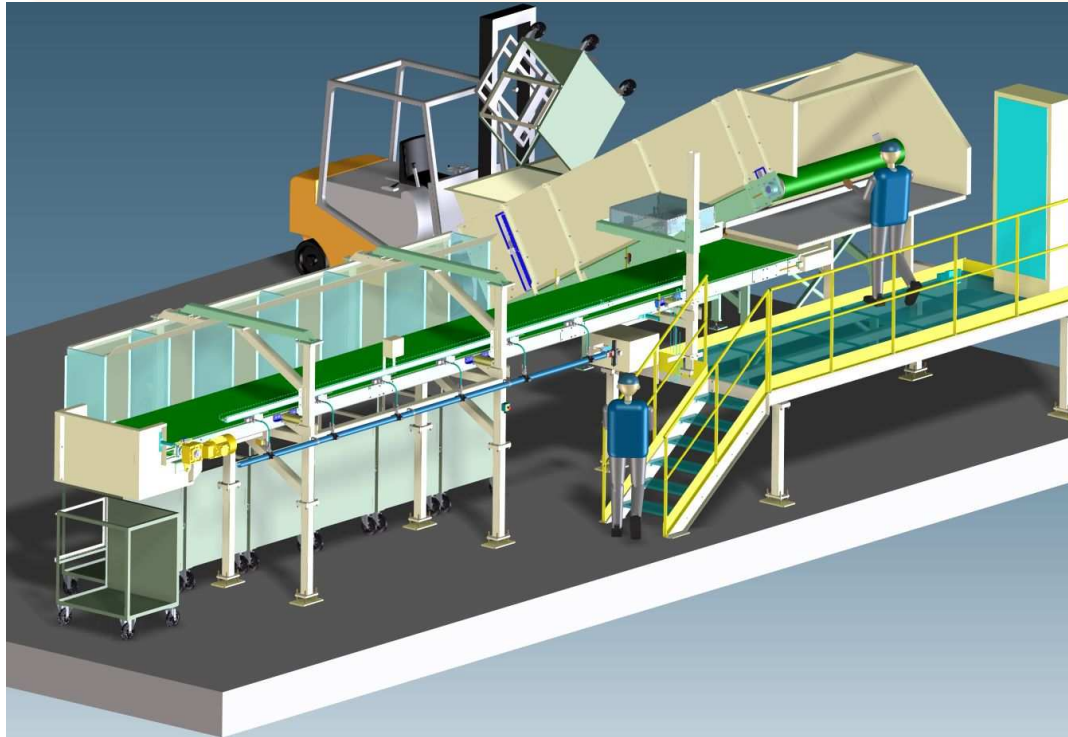
- Development of an industrial scale automated sorting machine for textiles based on NIR technology (building upon the Craft-project Identitex of 2001)
- Identifying market opportunities of sorted fractions and do small scale pilot projects (clothing and non-clothing)



The machine



The machine



The machine



The machine

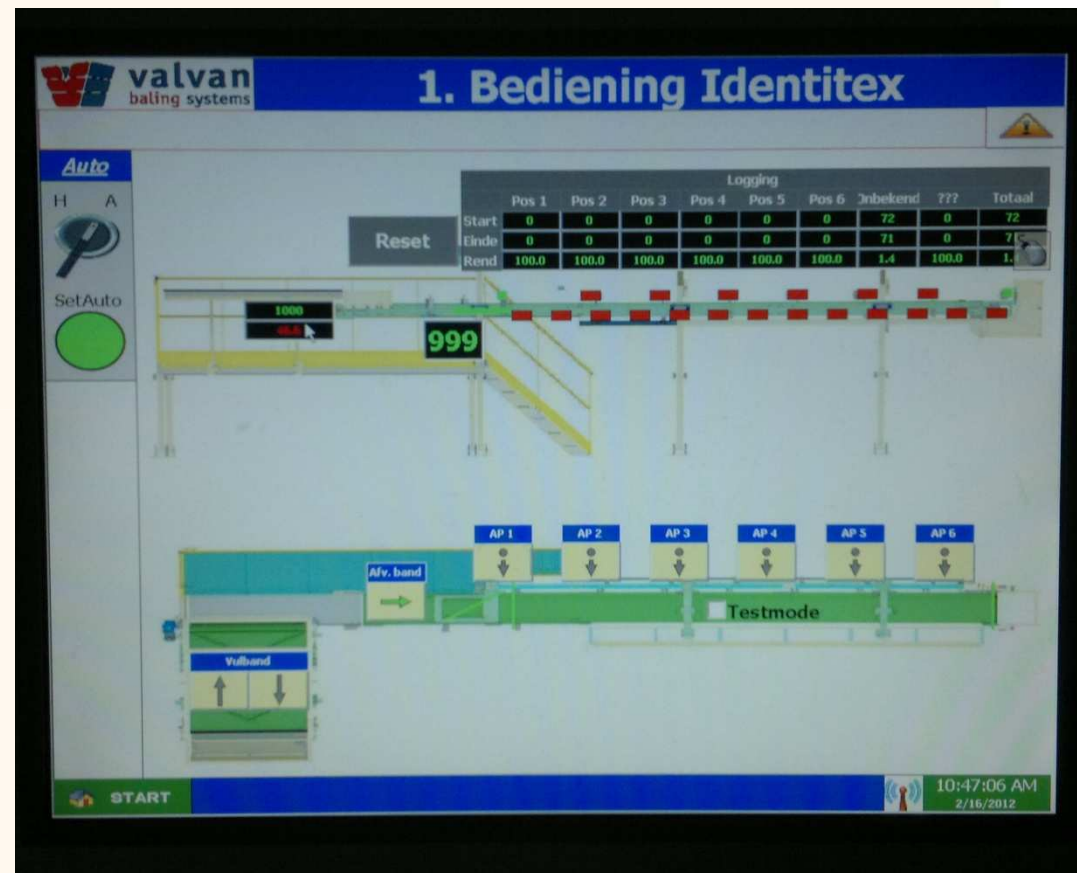




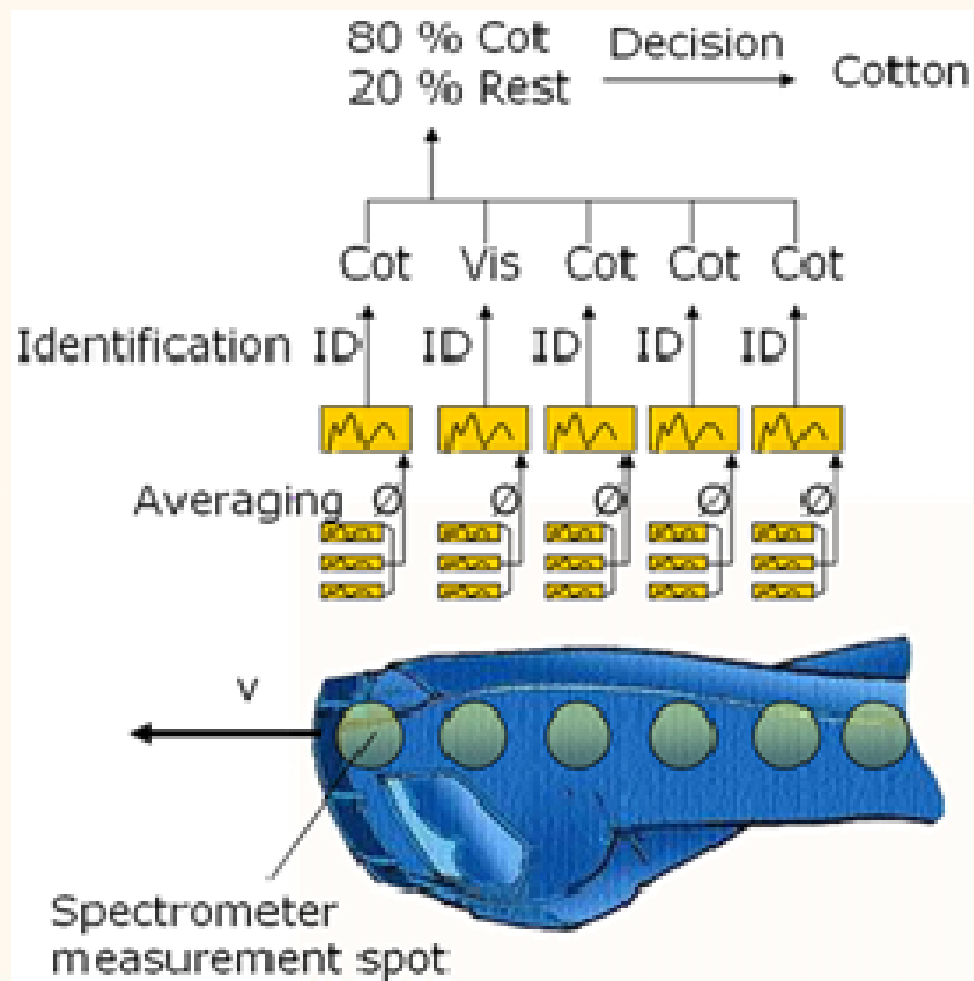




The machine



The machine

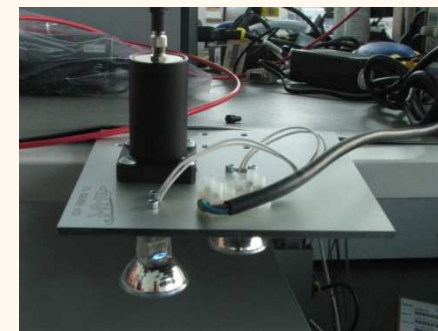
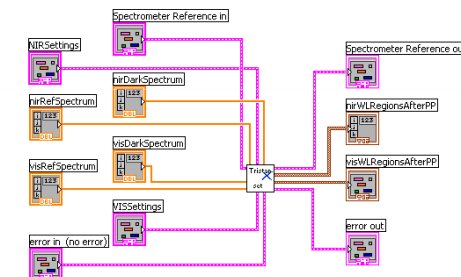




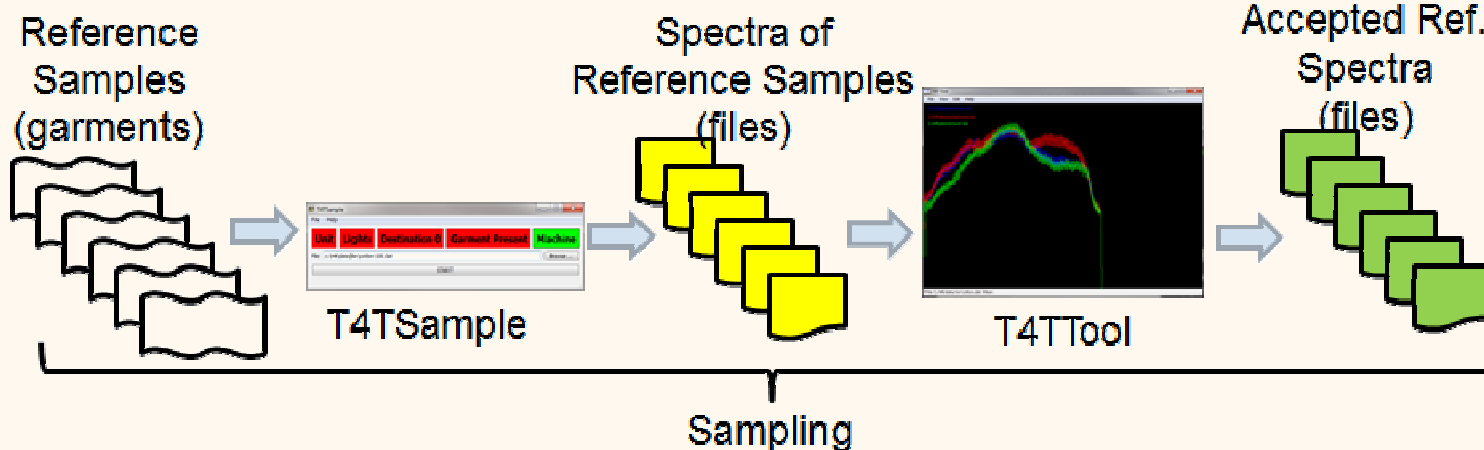
- Major specifications of the spectrometer system (mock-up):
 - Measurement rate:
more than 20 spectra per second
 - Spectral range (VIS):
300 – 700 nm
 - Spectral range (NIR):
1,300 – 1,700 nm
 - Optical resolution (VIS):
7 nm
 - Optical resolution (NIR):
15 nm
 - Measurement range
(Distance probehead – sample):
40 – 80 cm



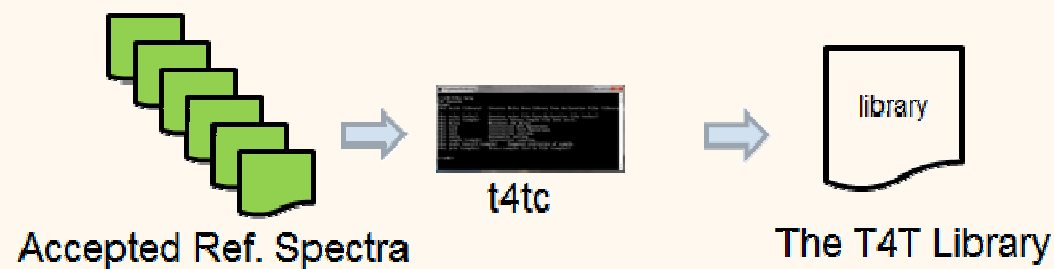
The machine



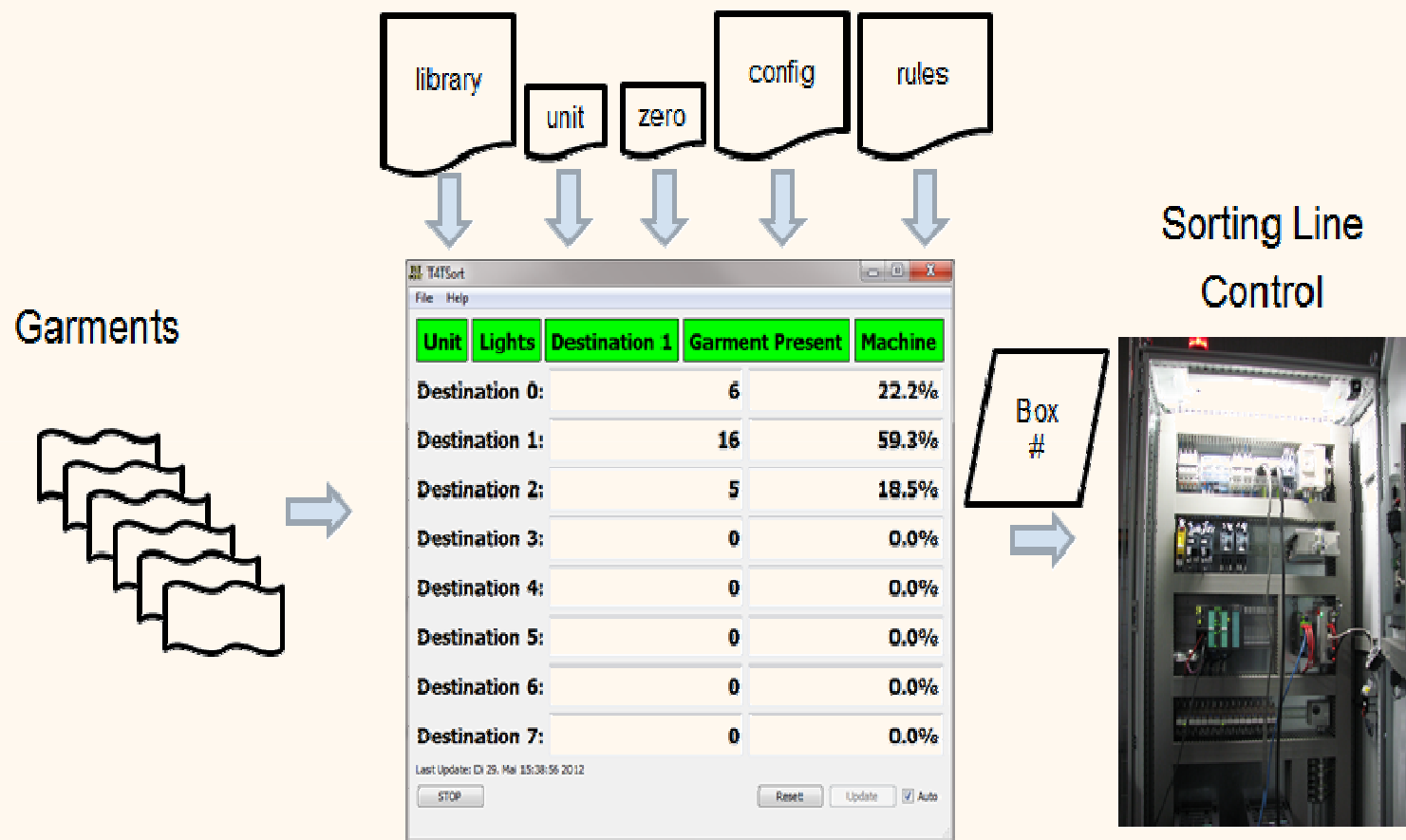
► **Step 1: for each reference sample:**



► **Step 2: If reference samples added:**



The machine





The machine in practice

- Temperature changes
- Mechanical shocks
- Vibrations
- Software



IDENTIFIED SPECTRA IN ACCEPTED SPECTRA

Samples	Total	Unknown (%)	Belt (%)	Cotton (%)	Acrylics (%)	Wool (%)	Poly- ester (%)	Cotton / Acrylics (%)	Acrylics / Wool (%)
Belt	86	41	59						
Cotton	1027	2		94		3		1	
Acrylics	695	3			94	1		1	3
Wool	899	4		2		90			3
Polyester	452	9					90		
Cotton/ Acrylics	401	6		5		5		82	1
Acrylics/ Wool	487	1			3	19		7	70

- Empty cell = 0
- „Dry-Run“ using identification algorithm in T4TSort and config, library, unit and zero files of sorting line
- Spectra used for computing the library





Thank you!

www.textiles4textiles.eu

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