Sächsisches Textilforschungsinstitut e.V.

Affiliated institute of the University of Technology Chemnitz

Managing Director: Dr. Heike Illing-Günther
Annaberger Straße 240 | 09125 Chemnitz | Germany I Phone: +49 371 5274-0 | Email: stfi@stfi.de I www.stfi.de

FOHOS – Mouldable wooden surfaces with integrated, selectively visible, non-contact control elements

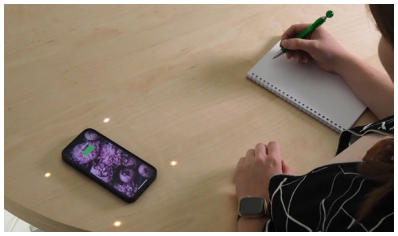
Objective

The aim of the project was to develop high-quality, 3D mouldable real wood surfaces with integrated control elements. The capacitive proximity sensors required for this were to be textile-fixed and applied behind the real wood surface. This textile fixation makes it easy to handle and apply the sensors. In combination with the 3D-formable wooden surfaces from C. H. Müller GmbH or comparable products, the textile character of the sensors was the basis for the subsequent formability and thus adaptability of the combination of sensor and wooden surface to any surface geometry. This makes it possible to customise the design of furniture and interior surfaces.

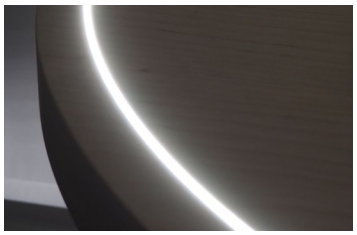
Approach and results

Embroidery technology was used to develop smart technical textiles (STT) as semi-finished products for further use. The STT consist of a natural fibre-based nonwoven fabric to which capacitive proximity sensors in the form of electrically conductive yarns and LEDs were applied as actuators. Both applications can be carried out automatically and precisely as required thanks to the technology used. By developing suitable joining processes, it was possible to produce textile-wood composite components. These are characterised by the fact that the STT are pressed together with a real wood veneer as the surface and a plywood, chipboard or MDF board as the carrier structure to form a layered composite. By varying the joining process, it is possible to determine whether the composite component is moulded as a flat panel material or as a 3D-formed (curved) element. The FOHOS composite components developed in this way are suitable for the production of attractive pieces of furniture, panelling elements for interior fittings or for use in the interior of motor vehicles. The result of the project was a demonstrator in the form of a height-adjustable table in addition to handy functional and illustrative samples. This has attractive lighting, an inductive charging surface for charging a smartphone and its height and lighting can be controlled via the contactless sensors integrated into the surface.

Level and shaped sample



Height-adjustable table with inductive charging surface



Underground lighting of the demonstrator

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Contact:	Dipl.-Ing. (FH) Franz Klötzer	Phone: +49 371 5274-281	Email:	franz.kloetzer@stfi.de	31/07/2025
	Dipl.-Ing. Elke Thiele	Phone: +49 371 5274-243	Email:	elke.thiele@stfi.de	

www.stfi.de