

## Keep Safe Backpack for VF Futurewear event



*The VF Keep Safe Backpack worn over the Sporty Supaheroe jacket by Wolfgang Langeder*

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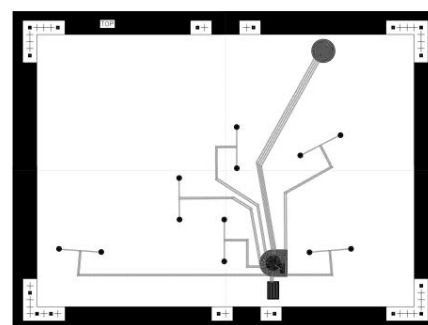
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The VF Keep Safe Backpack prototype from Fraunhofer IZM and Stretchable Circuits was developed for the Kipling brand and integrated into an customized designed backpack with six pockets/ compartments. Made with the intention of keeping valuables of different sizes safe, the bag contains an internal 'hold all' compartment, a padded laptop-sized pocket, an open outer sleeve and three other 'lockable' pockets.

The bag pack contains a stretchable-circuit-board (SCB) electronic system inlay, which monitors the access to the pockets. The system can be simply controlled with a single pushbutton on one of the front belts. An acoustic and optical feedback signals the state of the system, if the button is pushed (for 2-3seconds) by the user.

Small laces over the zips of the pockets are used, in order to control the access to the pockets. If all the laces are closed, the alarm system can be activated by holding the pushbutton for two seconds. Two short beep-tones and the blinking lights signal the user that the system is armed.

In the case that the user forgot to close a pocket, the system will produce a humming tone and remain deactivated. After the activation of the alarm-system, all pockets are monitored. If a thief tries to open a pocket, a loud alarm tone will sound, until the system is deactivated by the user. For the deactivation, the pushbutton has to remain pressed for three seconds. A short beep indicates that the system is now disarmed. This can also be done, if no alarm is triggered, in order to have access to the pockets. The design of the sounds, lights and the switch make it an intuitive system, which requires only seconds of testing to get the user started, without a manual.



*Layout of the Stretchable Electronic System for the Keep Safe Backpack*