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Smart-Textile Containers for Urban Mobility

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Abstract : Green urban mobility in commercial and private contexts is one of the great challenges for the continuously growing cities all over the world. Bicycle based solutions are already and since a long time the key to success. Modern developments like e-bikes and high-end cargo-bikes complement the portfolio. Weight, aerodynamic drag, and security for the transported goods are the key factors for working solutions. Recent achievements in the field of smart-textiles allowed the creation of a totally new generation of intelligent textile cargo containers, which fulfill those demands. The fusion of technical textiles, design and electrical engineering made it possible to create an ecological solution which is very near to become a product. This paper shows all the details of this solution that includes an especially developed sensor textile for cut detection, a protective textile layer for intrusion prevention, an universal-charging-unit for energy harvesting from diverse sources and a low-energy alarm system with GSM/GPRS connection, GPS location and RFID interface.

Keywords : cargo-bike, cut-detection, e-bike, energy-harvesting, green urban mobility, logistics, smart-textiles, textile-integrity sensor
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