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By David Manners 17th December 2019

Imec tags communicate via any touchscreen

Imec, TNO, and Cartamundi have developed a flexible capacitive identification tag that communicates with standard touch screens (C-touch).

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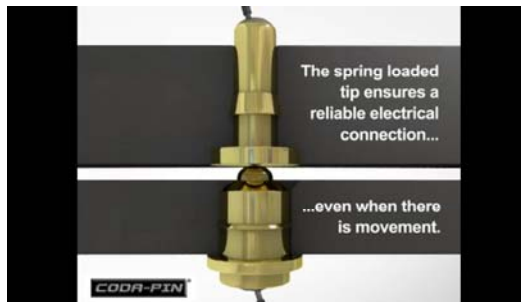


C-touch tags can be integrated in a wide range of paper and plastic based objects such as tickets, certified documents, payment

cards, realizing smart products.

The connection to the internet is established by placing the tagged object on the touchscreen or vice-versa.

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C-touch tags are thin and flexible chips that can be integrated in paper and plastic products. They have a unique identifier which can communicate via any touchscreen.

Smart cards or other objects with embedded C-touch tags can securely interact with the 4.5 billion mobile phones used worldwide, as well as with the large number of touch screens now being integrated in cars, booths, walls, coffee machines and all sorts of everyday objects.

Without requiring additional hardware and major reconfigurations or additional costs for the users, C-touch tags provide a solution to label trillions of everyday objects to truly create the Internet-of-Everything.

These tags offer security thanks to the very short communication range; general compatibility thanks to the presence of capacitive touchscreens everywhere; and the

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potential to be produced at low cost thanks to the monolithically integrated antenna.

Compared to existing RFID technologies such as NFC, the new C-touch tag does not require an external antenna. The tiny antenna is part of the chip itself, making the tag much smaller compared to current NFC tags. The small size enables integration into everyday objects.

Thus, C-touch tags are an alternative in all those use cases where interaction via touchscreens is feasible, but RFID/NFC tags are either too large or too expensive or where contactless reading is a disadvantage.

For example, in board games where cost is discriminator, to provide higher security in payment cards, or to replace difficult to service and manage hardware readers and access control points with easy to service and update apps on standard mobile devices, etc.

The tag is based on thin-film transistor technology and is powered by a thin-film battery or a thin-film photovoltaic cell that converts light from the touchscreen.

The 12-bit thin-film capacitive identification tag achieves up to 36bps data transfer rates at 0.6V supply voltage, which is compatible with commercially available touchscreen devices without requiring modifications.

The flexible thin-film IC has a 0.8cm² on-chip monolithic antenna and dissipates only 38nW of power at 600mV supply voltage.

“Our C-touch tag paves the way to a multitude of new applications compared to standard RFID or NFC solutions as it takes advantage of the widespread availability of touchscreen readers compared to the limited amount of NFC readers,” says Imec’s Kris Myny, “we are testing the tag system and communication method using a range of different touchscreens from a variety of brands, including Apple, Samsung and Huawei.”

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