

Internet of Things

Intro: Enabling the intuitive Internet of Things

Thanks to microchip technology, every object – machines, buildings, vehicles, personal appliances – can be connected to the Internet to provide us with a continuous flow of useful information. It is expected that by 2020, this Internet of Things (IoT) will connect billions of devices.

Imec develops the building blocks and digital technology for an ‘intuitive’ IoT – an Internet of Things that discretely runs in the background, yet is instrumental to increasing our wellbeing and comfort.

Concretely, imec’s intuitive IoT consists of ‘thinking objects’ – networked sensors that constantly monitor the environment, provide status reports, receive instructions, and take short-term and long-term actions based on intelligent processing of the gathered data. This intuitive IoT will interact with us and learn from our habits, preferences and health, ... It will help us make better-informed decisions while taking our privacy and security concerns into account. And it will help us create a more sustainable and safer world at large.

Such an intuitive IoT will have enormous potential. But in order to fully unlock its economic and societal value, a number of challenges need to be tackled.

First, we need further innovation in hardware. We need single chip integrated wireless sensor modules, containing sensors, actuators, processing, storage and communication abilities. And secondly, we have to find solutions for the security and privacy considerations that were mentioned before, and solutions to cope with the tsunami of data that is being generated. Please read our experts story on this subject on the next pages.

Imec plays a leading role in studying and solving some of these issues. It has the critical mass to realize breakthroughs that will make the intuitive IoT a game changer in various application domains – such as smart health(care), smart mobility, smart cities, smart industries, and smart energy. These application domains are highlighted elsewhere in this annual overview.