Connect everything!

At the recent innoLAE conference in Cambridge, UK, OPE journal sat down with Dr Richard Price, CTO at PragmatIC, for an exclusive interview on his company's vision of creating 'trillions of smart objects'

Richard Price

Being a representative of a Cambridge-based company, innoLAE was a true 'home game' for Richard Price from PragmatIC. The integration of electronics in everyday objects has been the main goal of PragmatIC since its foundation in 2010. During his presentation at the event, Price pointed towards item-level identification as a main benefit of this concept. "Digital traceability enables big data," he underlined. This entails the entire lifecycle of a product: from start-of-life to the supply chain, the store, at home, and after its disposal (end-of-life).

Nonetheless, the challenge to implement item-level identification is enormous: Fast-moving consumer goods (FMCG) have huge volumes – for instance, there are more than 20 trillion beverage servings per year, excluding water, worldwide. Moreover, FMCG prices are very low, with typically under US$5 per item. "High volume requires low cost," emphasised Price. PragmatIC's suggested solution is the FlexIC technology, which not only reduces total inlay costs by up to 80%, but also enables extreme thinness, flexibility and durability.

OPE journal: Mr Price, you just gave a fascinating presentation about PragmatIC's goal of making trillions of objects 'smart', as well as item-level identification . . .

Richard Price: Item-level identification is essentially providing a cost-effective way of putting an electronic code onto any product that you want to, e.g. by means of a label or sticker. What we developed is a low-cost way of doing exactly that with our electronic semiconductor chips. This also facilitates the assembly processes. In terms of applications, I think that almost anything goes: from packaging to household objects. As you saw in the talk, we are also expecting high potentials in sensing technology.

OPE journal: Where do you see the main demand for this technology?

R. Price: When we look at retail and the supply chain, it is a natural extension of what is already happening. In clothing, item-level identification is already firmly established. In stores like Decathlon, for instance, RFID-enabled products are the norm. In my talk, I also pointed at the correlation between the cost of the tags and the number of objects. Therefore, the demand from retail is certainly strong, but we also see similarly high demands in other areas, e.g. healthcare. In the latter case, there are lots of requirements to track different samples through a supply chain.

OPE journal: Is it fair to say that your solution is the only one to offer such a low cost level, which makes large-scale implementation feasible for the first time?

R. Price: We certainly believe that! We found a good balance between performance and costs on the one hand, and the manufacturing approach on the other hand. This is why we are now able to scale up to these large volumes of trillions of objects.

OPE journal: In your talk, you mentioned the astonishing number of more than 600 billion soft drink servings per year on a global scale. This requires enormous manufacturing capacities – are they already available today?

R. Price: Not all of it is already available today. From the manufacturing perspective, there are two elements to consider here: One is the capacity for making the integrated circuits. We estimate that a trillion smart objects will require 100 FlexLogIC manufacturing lines – this is actually a fairly low number. However, you also need the assembly capacity. We expect that this could grow on a similar scale as well. We are working on that together with assembly partners and tag manufacturers.

A beverage label concept

OPE journal: So it will be a decentralised solution for different parts of the world?

R. Price: Exactly.

OPE journal: What will be your next steps to take?

R. Price: This year, we are aiming at getting our technology into the market in higher volumes. Moreover, we want to increase the maturity of our products. In the coming years, we will be expanding our manufacturing – also through deploying our systems in other locations. While we are ready for the first set of applications, we are also working on future technologies and improvements to enable more efficient manufacturing. The integration of sensors is a further goal.

Image sources: PragmatIC