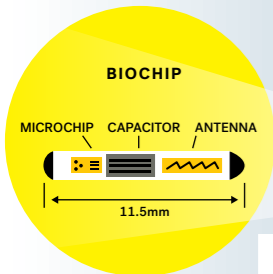


AN INTERNET OF THINGS ILLUSTRATIVE JOURNEY

FROM CONNECTED COWS TO TALKING TOASTERS, IMAGINE BILLIONS OF ALWAYS-CONNECTED DEVICES THAT CAN PROCESS INFORMATION, COMMUNICATE WITH EACH OTHER AND MAKE DECISIONS, ACROSS THE FIELDS OF MEDICINE, AGRIBUSINESS, LOGISTICS, RETAIL, HOSPITALITY, HOMES, OFFICES, GOVERNMENTS AND CITIES.

The 'what if' scenario depicted on these pages offers just a hint of the capabilities of a world containing trillions of sensors connected to the internet. This isn't science fiction, it's all technology that's available now, much of it already connected to existing internet infrastructure, the rest just waiting to come online...

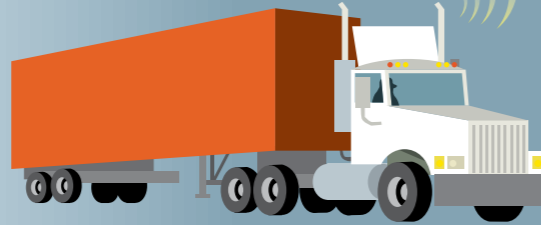


1 Agribusiness

A small glass tube housing a biochip transponder is embedded under the skin. It not only contains a unique identification number, but is also sensitive to biochemical signs. If the biochip detects anything untoward, the farmer will know and the vet informed automatically, even without any external signs of disease.

Data from the cattle is captured when are in proximity to a scanner (hand-held or 'gate' devices). The signal from the scanning device provides enough energy for the transponder to send back its data, which then feeds into a herd management system.

The herd management system provides the farmer with analytics on yield trends for the herd overall and for individual cows, the data alerting the system to small but potentially productivity-affecting changes. The ID sensors on each head of cattle, in conjunction with apps such as iHerd or DairyComp, can improve station processes, simplify herd management and stock traceability, and therefore save time and money.



A vehicle equipped with internet access and a wireless local area network (LAN) allowing the vehicle to share internet access to other devices both inside as outside the vehicle.

Apps are available to interact with a vehicle from any distance. Users can unlock a vehicle, check the status of batteries on electric vehicles, find the location of the car, or remotely activate the climate control system.

2 Logistics

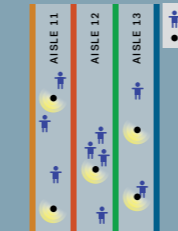


Inside the milking shed, the equipment is online - if a component is exhibiting sub-ideal performance, a ticket is logged. If an on-site visit is unnecessary, a service representative is able to log on to the system remotely, access diagnostics and make software adjustments.

Automatic notification of crashes, notification of speeding and safety alerts increase efficiency for road transport. Vehicles and the packages they carry are dynamically tracked. Vehicles receiving data from a traffic light network can automatically alter their speed to time the most efficient run through a route.

3 Supermarket

The cost of radio frequency identification (RFID) tags is approaching a point so low that soon it will be economical to include one on every piece of packaging. When every pack of gum has a unique identifier, inventory management and transaction processes in physical retail are revolutionised.



If a customer has downloaded the retailer's app, it can use push messaging to deliver contextual offers and messaging. If it's also linked to the customer's loyalty program account with purchase history, behavioural profile and preferences, the intelligence, and therefore the effectiveness, of that messaging increases significantly.

For the first time, the information flow of a logistics system can be combined with the material flow. This creates an internet of things for transport logistics in which the logistics objects are capable of processing information, communicating with each other and making their own decisions (Hribernik et al 2010).

4 Home

RFID tags on products interact with readers and feed data into an appliance's computer system. Your fridge would know exactly how many bottles it contains and how long each bottle has been there. When you're driving past the supermarket on the way home from work not long from now, expect a text message from your fridge telling you that you need to pick up some milk. Or reminding you that tub of yoghurt right at the back is about to celebrate its first birthday...

The trolley is connected, the products are connected and the customer is connected to the store's system. It's therefore entirely possible for the exact products placed in the trolley to be identified, invoiced and paid for without the customer taking their wallet or phone out of their pocket, let alone messing around with a checkout system.

Not to be outdone by the fridge, a pantry reader unit could track its inventory and lifespans.