Anti-counterfeiting and anti-piracy technology guide

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RFID

RFID uses radio frequency technologies to recognise objects, animals or people remotely. It does so through electronic tags that, at their most basic, assign a unique identity to whatever they are attached to and transmit it via radio frequency channels. This unique identity, along with any other data that may be stored on the device, can be picked up by readers. RFID readers can be connected to the internet, allowing the data to be monitored in real time.

RFID tags therefore play a key role in enabling product traceability as they provide for the unique identification of products in real-time throughout the entire supply chain. They are also reasonably versatile: they can both authenticate and identify whole products as well as their individual parts. For these reasons, RFID technology is suitable for use in internet of things (IOT) solutions and is widely used in anti-counterfeiting devices. One particularly common example is in ‘smart labels’, where RFID tags are embedded into adhesive labels to make them ‘smart’. There are several different types of RFID technology.

However, all RFID systems consist of the same three key elements.

- Tags – these are attached to the goods and include an antenna and a microchip that contains product data (e.g. unique identifiers or URLs of websites that contain further information). The extent to which the solution is secure from reproduction and tampering depends on:
  - the communication protocol; and
  - the way the information stored in the tag is protected (e.g. by a code, password or encrypting algorithm).
- Readers – these are used to query the tag, receive response information and transfer it to the data processing system. RFID readers are specific to the type of RFID tag adopted.
- A data processing system – this is connected to the readers via the internet. The system uses the identification codes from the tags to obtain and manage all the available information associated with the objects.

The costs associated with implementing RFID systems vary according to the functions you want them to perform and therefore the type of device used.



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