

# SMART PRODUCTS AND SOLUTIONS

## Purpose

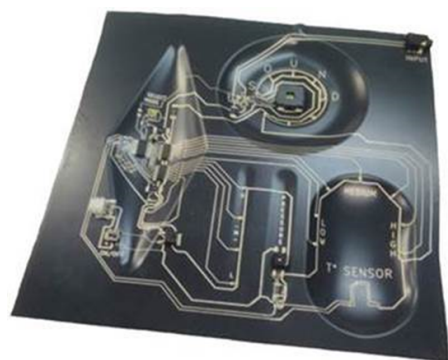
The unique skills developed by CRM Group meet the multi-sectorial needs of a growing number of applications to integrate sensors, connectivity, artificial intelligence and smart and active functions into their processes and products unlocking the full potential of digitalisation for the metals related industry. Since a decade, we are developing an unique expertise to embed smart functions in metal solutions by printed and structural electronics technologies for the production of new electronic devices and sensors with roll to roll technologies (flexible electronics) or 3D printed technologies.

Printed and structural electronic



Optoelectronics, sensors, connectivity  
Homemade materials & coatings

Smart solutions



Connected steel building panels, IR stealth for defense, Printed conductive tracks for automotive...

A first exemple is the development of connected steel objects through the integration of steel antenna; a challenging development because of the interaction between the electromagnetic field signal and the metal which strongly affects or even damages the antenna signal. To deal with this issue, we have applied several strategies for developing specific Radio Frequency IDentifi cation (RFID) antenna designs which would fit with metal environment combined with a careful selection of dielectrics and its thickness applied on metal to uncouple antenna from it. The final target is the demonstration in a connected steel panel for construction market.

A second exemple is a high temperature sensor to monitor the temperature of a furnace for hot stamping in the frame of the H2020 project HIPERMAT: the thermal spray technology has been chosen since it is not only well adapted for the manufacturing of the insulating and encapsulation layers of the thermocouple but also to print the metallic junction of the thermocouple.

