

# **ANALYSIS, DESIGN AND IMPLEMENTATION OF A MIDDLEWARE APPLICATION TO ACCESS THE SELF SERVICE DEVICE INCLUDED IN AN AUTOMATIC TELLER MACHINE ( ATM)**

We are NCR (NYSE: NCR), a global tech company—and we run the everyday transactions that **make your life easier**. We're the world leader in consumer transaction technologies, turning everyday interactions with businesses into exceptional experiences. With our software, hardware and portfolio of services, we make more than 485 million transactions possible every day.

By continually learning about—and pioneering—how the world interacts and transacts, we're helping companies not only reach their goals, but also change the way all of us shop, eat, travel, bank and connect. Together, we are shaping the future.

With this in mind, NCR announces that the 2016/2017 internship program will now be open to EMSE students currently in their first or second year. This program includes two main components: an internship period and a master thesis period.

## ***DESCRIPTION***

According to BdE, Spain has more than 52.000 ATMs deployed across the country.

NCR has at least 10 different models deployed in each customer at any given time. This is mainly because we are market leaders with more than 45% market share (RBR 2013), but other vendors also have a number of different models deployed in the market.

Inside each type of model, there is a complex combination of more than 30 hardware modules and a comprehensive set of application functions ranging from cash withdrawal, remote deposit, security controls, promotional messaging to personalization.

NCR Spain provides to their customers an ActiveX layer that allows them to access and control all the self-service devices installed in an ATM. There is an ActiveX per each device (logical or physical) in charge of interacting with the specific device. We would like to develop a Java middleware framework which includes all the ActiveX and provides to the customer applications an extensible logic layer controlling status changes, remote management, automatic recovery, etc.

## ***Internship***

The goal of the internship is to get to know NCR, its solutions and its way of doing things. Also, we expect the student to perform the total phases of the project: elicit requirements in a cross-functional team, develop a high-level analysis, develop a high-level design, learn the technology and develop the application using short, iterative and incremental iterations.

## ***REQUIREMENTS***

Students should have programming experience in C++, Java,

## **LOGISTICS**

- The program will be hold in NCR-Madrid (C/. Albacete, 3, 28027 Madrid, Spain)
- The timetable is flexible, although we expect at least 25 hours/week during the internship.
- We expect the students to be in our offices for 420 hours in the internship period
- We'll help the student with 4.200 euros (before taxes)