

LIS

Laboratoire d'ingénierie des systèmes de Versailles

PROJET4 - MASTER2 CSER 2015

MULTISS Embedded data storage system using a STM32F3-Discovery

The MULTISS project (MULTiscale Interferometric Scanning Stage) aims to develop nanopositioning stages to increase the ranges of existing microscopy or lithography applications. One of the challenges in nanotechnology is to design a system that combines long range and high resolution for positioning. However, in 2010, the LISV (Laboratoire d'Ingénierie des Systèmes de Versailles) succeeded in obtaining a millimeter long AFM image (Atomic Force Microscopy). In this context, the aim of my Master Thesis was to develop an embedded system to store the position of the stage @20kHz.

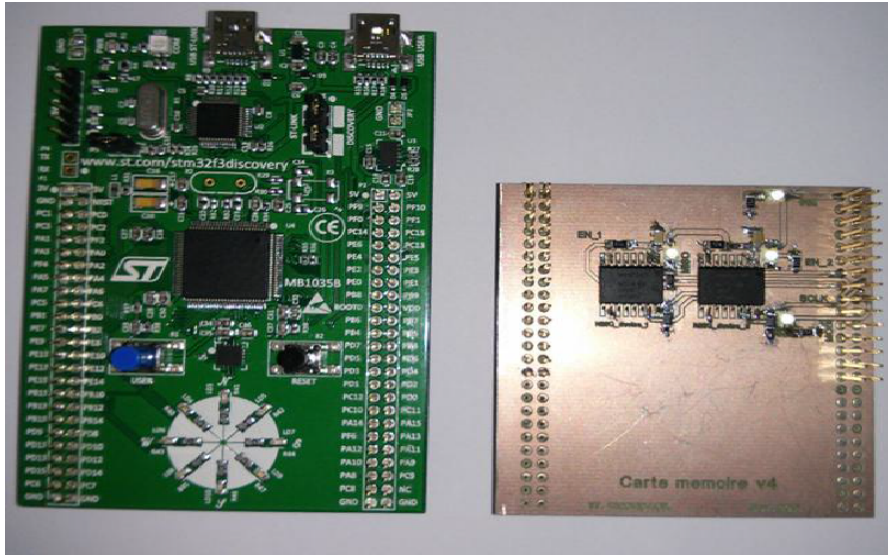
My first task was to identify the most suitable communication protocol available on the STM32F3.

Based on the results of the previous task, the type of memory was chosen.

A shield for the STM32F3 was then designed and produced. It includes a FLASH memory module and

the communication layer via SPI.

A library, written in C, allows the user to easily communicate with the FLASH memory.



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