# Preface

The first goal was to make a simple low cost audio player like can be found in Chinese toys. The second goal was to learn about ARM microcontrollers, the system is built around a ST STM32F030F4.

The system contains the following parts:

* A simple file system
* SPI Flash storage
* A terminal program to write WAV files to the file system
* A 8KHz mono WAV player with up sampler to 32KHz
* 32KHz 8-bit PWM to drive the speaker
* A state machine to control which file to play
* A trick to save the previous state during Standby mode