

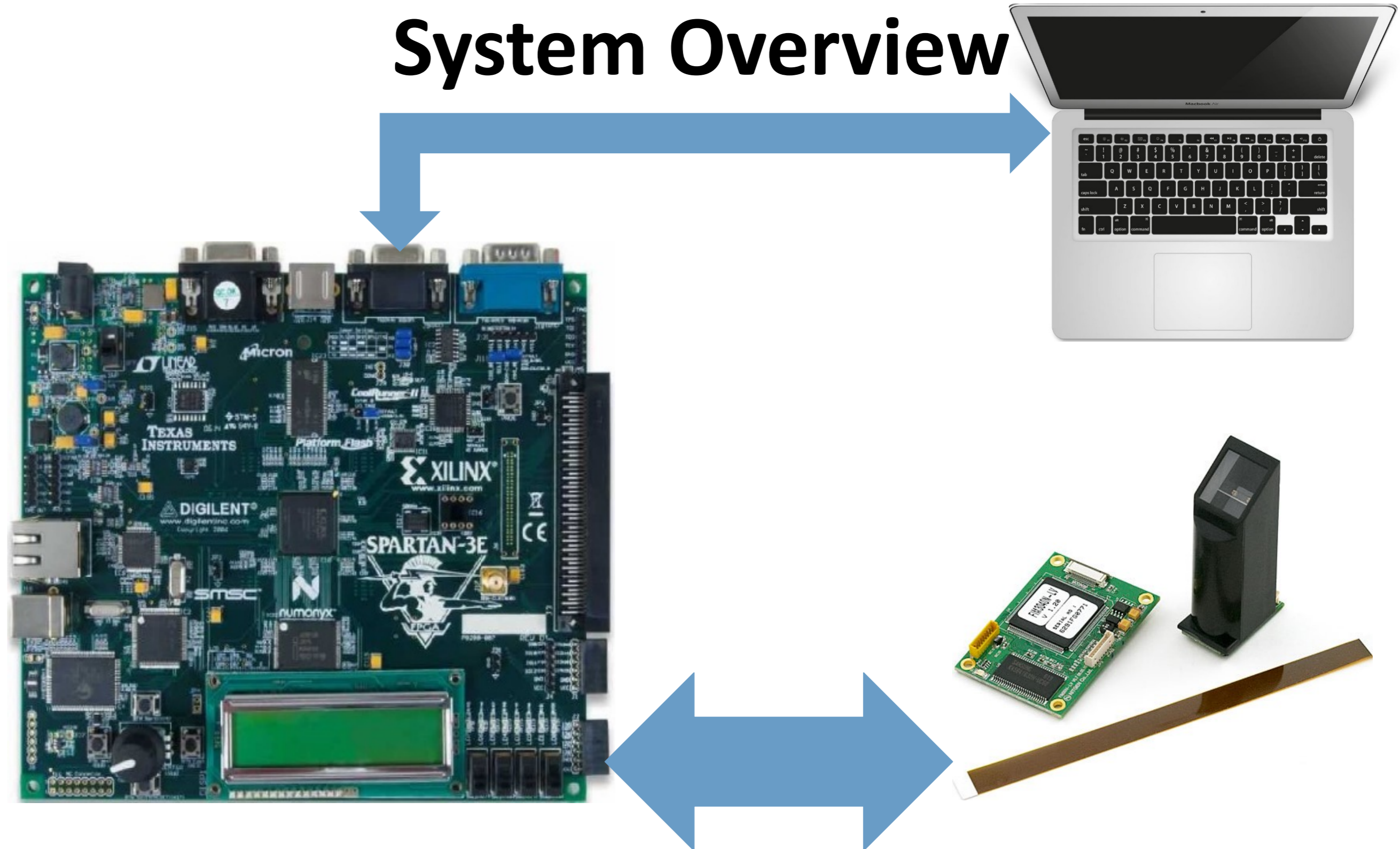
Introduction

Fingerprint sensor security systems are increasingly used on doors instead of classic key-lock systems. This project aims use of microblaze softcore processor on FPGA(Spartan 3E) and fingerprint sensor together.

Design Methodology

- For design purposes Microblaze has been chosen over Picoblaze. So that instruction memory could be developed by C instead of Assembly.
- System is using MAX3232 UART to RS232 converter integrated circuit to connect FPGA and fingerprint scanner. Also, UART to USB converter has used to connect PC and FPGA.
- The key pressed from the PC is converted to the corresponding command in the FPGA and the command is sent to the finger print sensor.
- The data coming from the sensor is parsed in the FPGA and converted to a format that user understands at the serial terminal.

System Overview

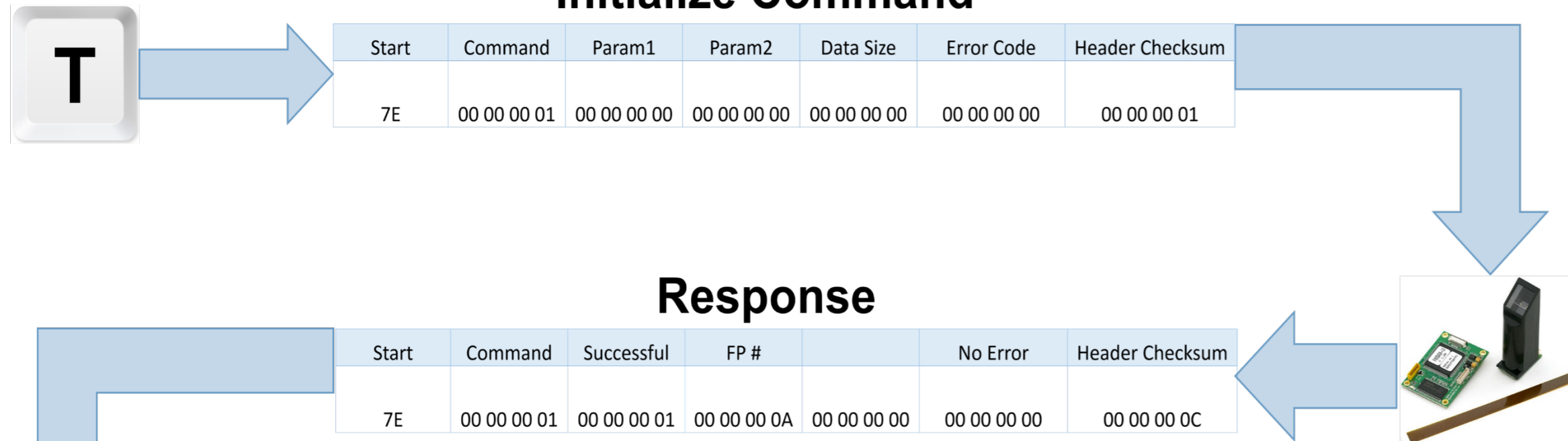


Desired function send from computer via FPGA to FP sensor and FP sensor send its answer in the same way.

Future Work

Project can be improved with a better user interface (Both software and hardware) and all excluded functionalities supported by fingerprint sensor can be added as well. In addition, multiple sensors can be controlled with this system.

Initialize Command

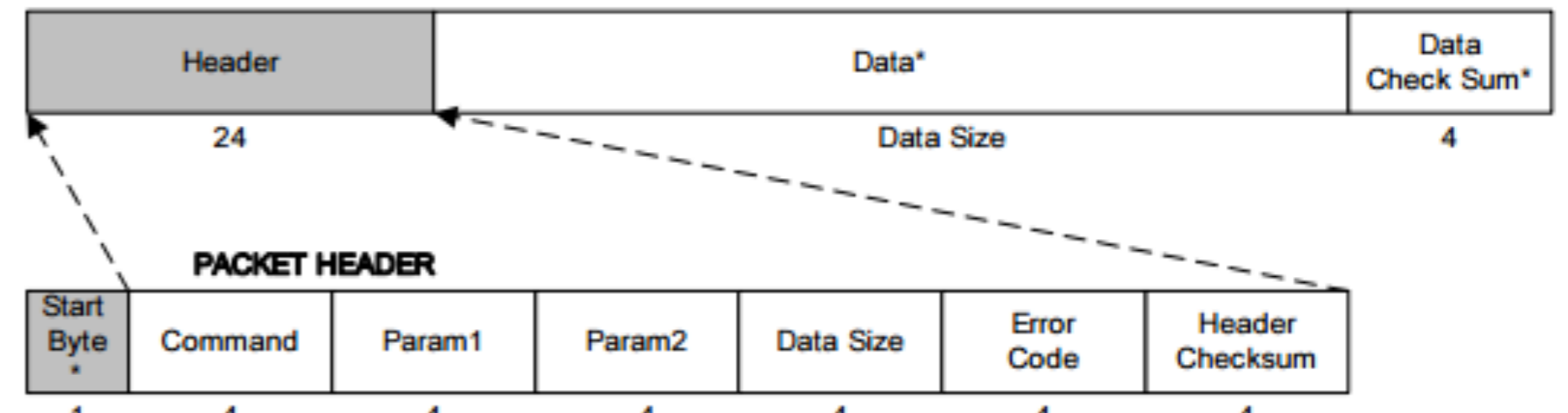


Response

Start	Command	Successful	FP #	No Error	Header Checksum
7E	00 00 00 01	00 00 00 01	00 00 00 0A	00 00 00 00	00 00 00 0C

System is working.
Total finger print
count is #

PACKET STRUCTURE



* If data size is zero, then data and data check sum is not used.
* Start byte: 0x7E

List of Implemented Commands

- Initialize
- Indentify
- Enroll
- Delete All
- Delete
- Master Entry