Project Title: Initech V7.017b Lab Entry System
Team Name: Capacitive Inductance

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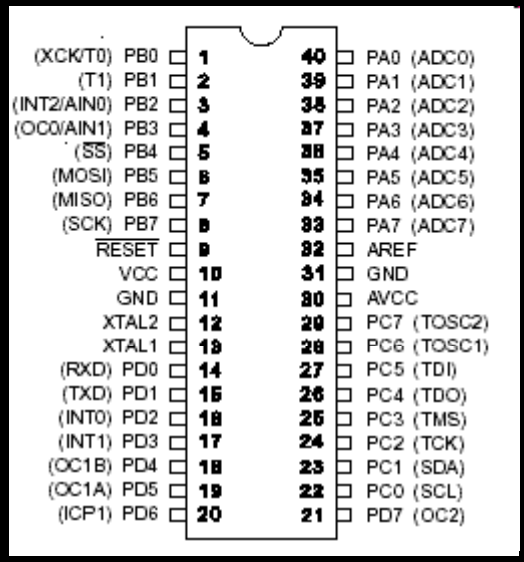
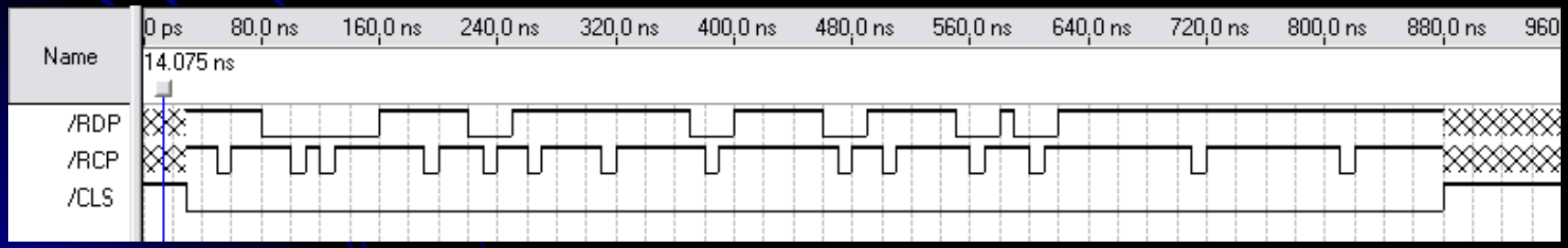
Card Reader Door Entry System

- Step 1 Talk to Card Reader with Atmel



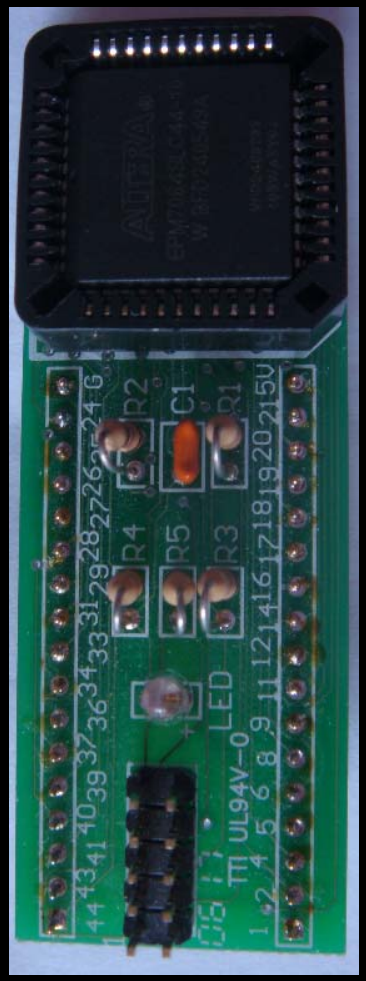
LSA Output

- 3 Signals Active Low LSB First
- 4 data bits, 1 parity bit, 5 bit “bytes”
- 1 Start byte before any data bytes
- Difficult to work with 5bit inputs with built in SPI on the Atmel

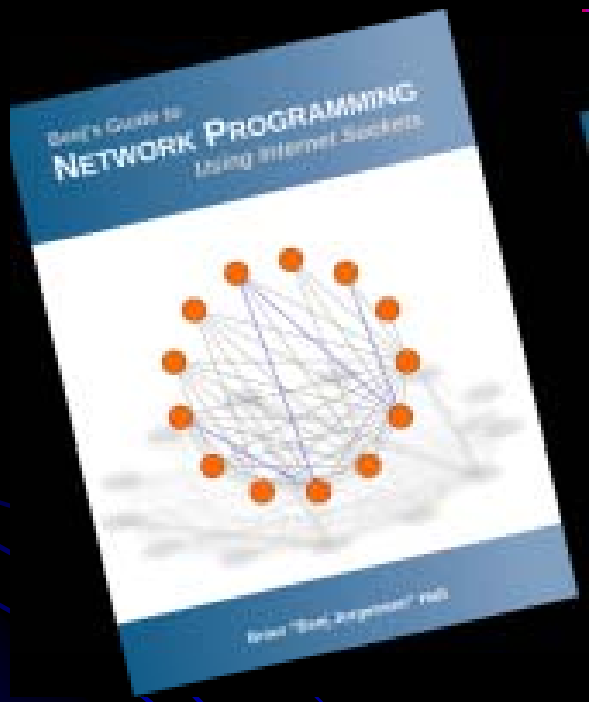


Solution

- Use a CPLD to shift out 4 bit data
- Read 4 bits in parallel when CPLD flags data ready
- Read 8 times for 8 ID numbers



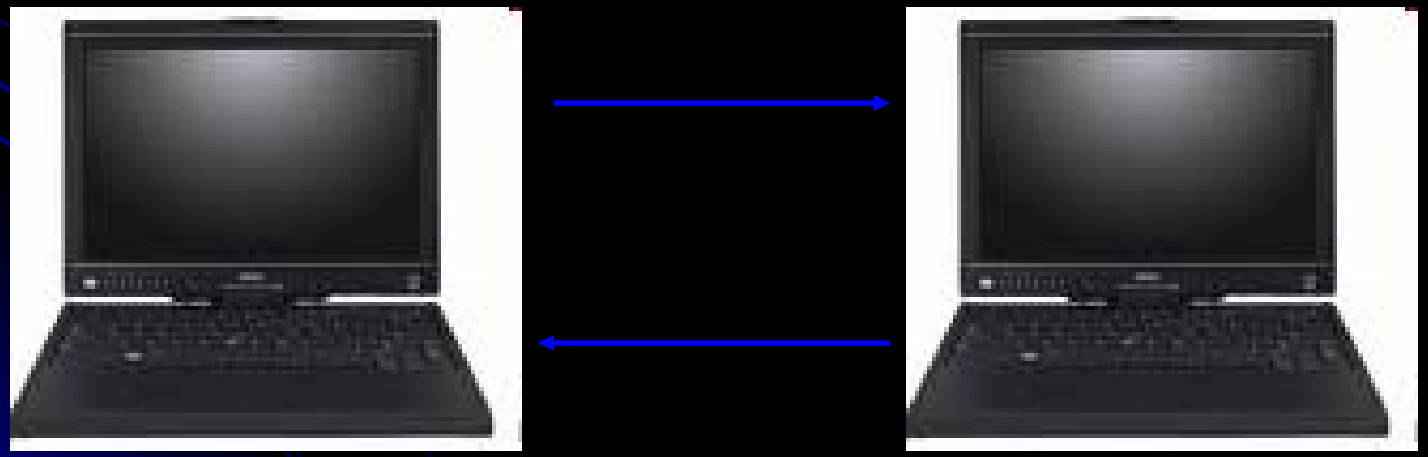
Step 2 Learn Network Programming



- 2 Options with Socket Programming
  - UDP, TCP
- Decided on UDP, no need to program TCP stacks for the Atmel

Programming

- Wrote Server Software
- Emulate Card Reader Communication with Software
- Tested both Server and Client Programs

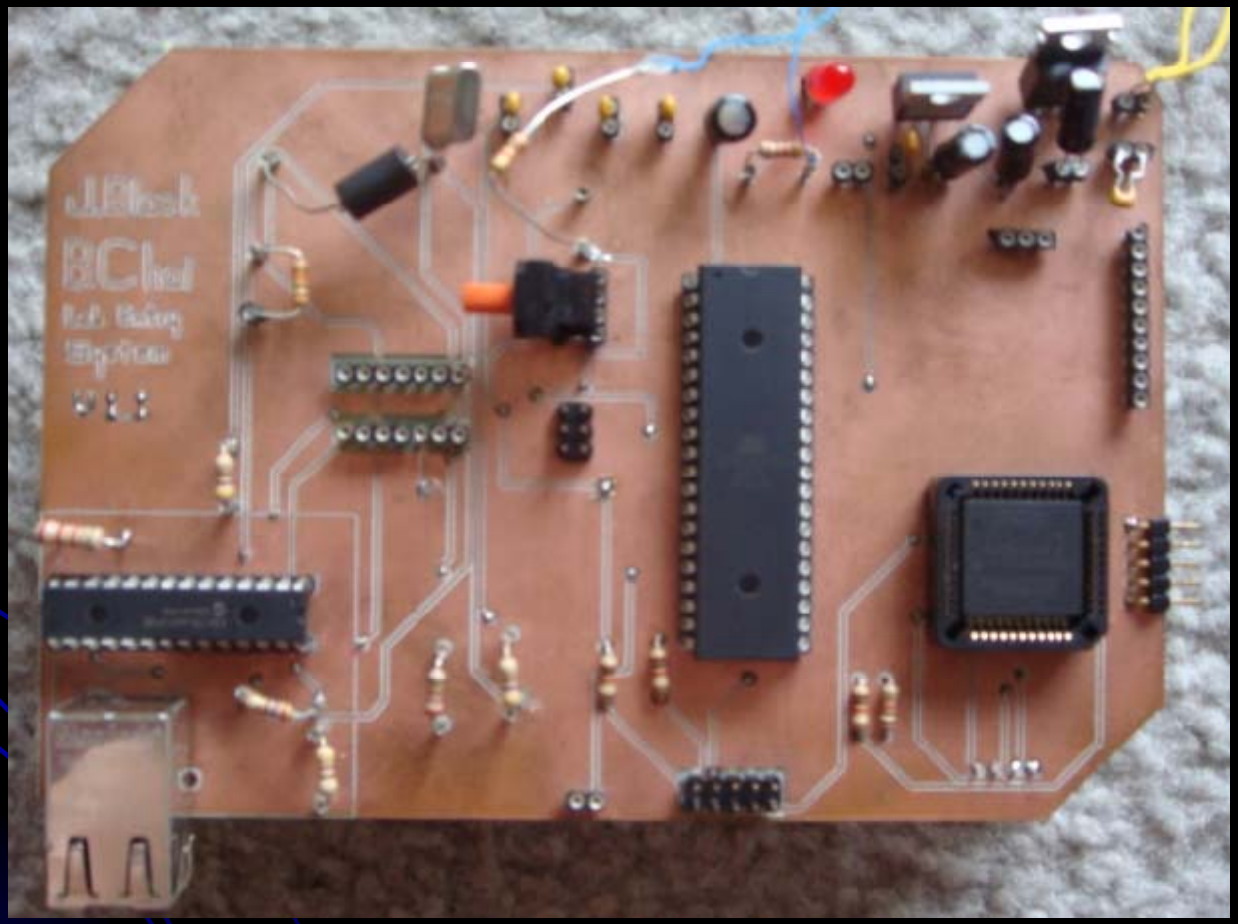


Network Controller

- ENC28J60 – Ethernet Controller with SPI interface

- MagJack – RJ45 Socket with LEDs and internal magnetics

Design and Build PCB



More Programming

- Configure SPI to talk to ENC28J60
- Code protocols to send and receive packets.
- Put everything together to yield a finished product.