Simon Says

Ted Samore
Randy Soriano

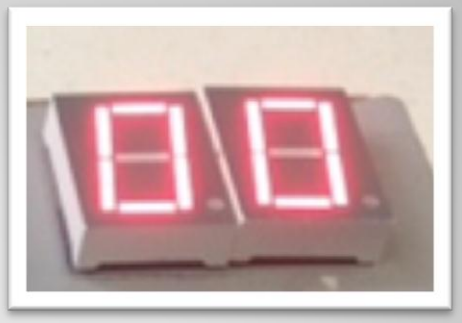
ME430
Rose-Hulman
Institute of Technology

2014

Materials

- Four Large Light Up Arcade-Style Buttons

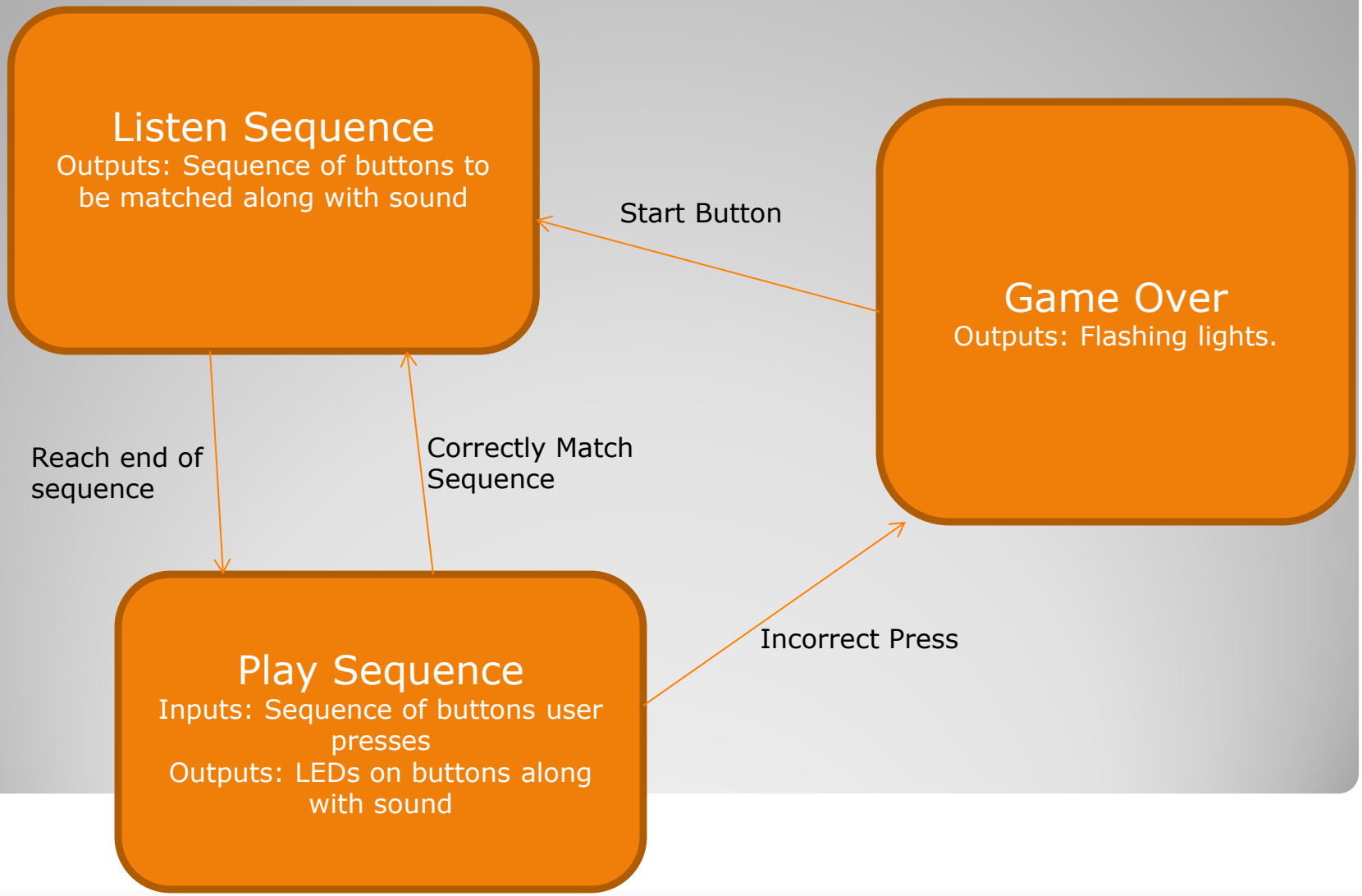
- Two seven-segment displays



- Speaker

- Two small buttons

Finite State Machine



6 Inputs

- Start Button
- Four Gameplay Buttons
- High Score Button

Interrupts

- Interrupts were needed for the high score and start button.
- As the start button is pressed during the game over state, a high priority interrupt stops the light flashing sequence and begins the game.
- If the high score is pressed during the game-over state, the seven segment display shows the current high score.

13 Outputs

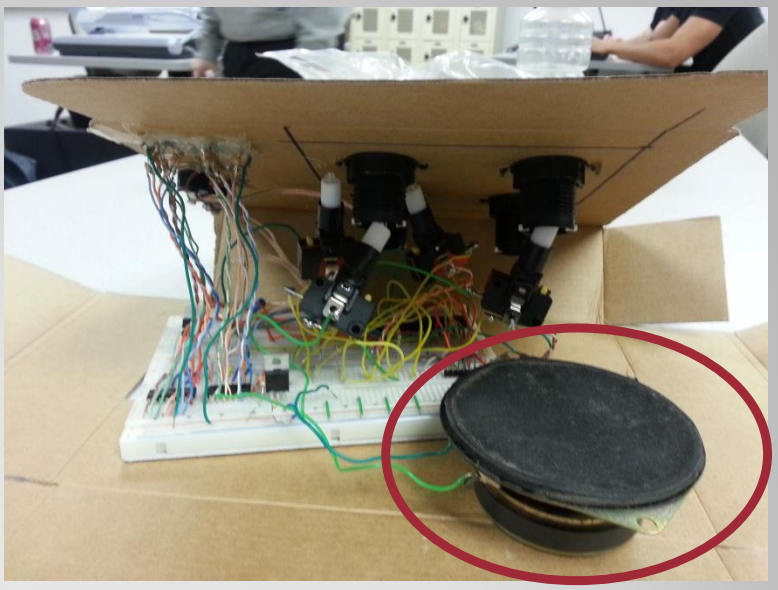
- Eight outputs for two seven-segment displays
- Four outputs for LEDs on buttons
- 1 output for speaker

Timers

- Timers controlled how fast the sequence was played.
- We made it so that as you progress through the levels, it gets more difficult and the sequence plays faster.

Pulse Width Modulation

- Adjusted frequency of speaker to make arcade-like sounds



Results

- It worked great!
- Addictive game play!

Advice

- Perfect Project
- Reinforced almost all course concepts (PWM, Timers, Interrupts, Finite State Machines)
- Be careful with small delicate parts (they break easily)

- Tons of Fun!

Thank You

- Dr. Burchett