**ECE 367 Final Project**

**ECE 367 – Microprocessor Design (Spring 2013)**

**PROFESSOR:** Robert Becker

**T.A.:** Chenjie Tang

MWF – 10:00AM – 11:50PM

T Lab: 8:00AM – 10:50AM

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1. Logic Diagram

4



Matrix Keypad

4

μCore

3

2

SIPO

LCD Display

3

8

START/CONTINUE

PAUSE/CLEAR

THERMISTOR

1. Schematic Diagram
   1. See attached sheet following this page.
2. 9S12 Assembler Program

See following page.

1. USER MANUAL

See following page.

1. Conclusion.
   1. How well does your project meet the specifications?
      1. It has a countdown timer set control for minutes and seconds
      2. It has implemented the start/continue key, Press once to start. Press again after pause to continue.
      3. Pause/Clear Key. Press once for pause. Press again for Stop/Clear if the Start/Continue has not been pressed.
      4. The LCD shows the current state of the system.
      5. The system implemented 5 interrupts (3 timer, XIRQ, and IRQ).
      6. This has a power setting indicator and indicates the current power on the LCD as well as the Power LED (microwave element).
      7. Easy Cook key that sets the timer to 30 seconds and automatically starts the oven on full power.
      8. A menu key complete with 3 different options
      9. Temperature probe function from an internal 10-bit A/D line. This setting allows the microwave to automatically shut off when the set-point is reached.
      10. All features listed above were successfully implemented fully and work correctly. Although I haven’t had a focus testing group to test the control panel, I have operated it multiple times and have worked all major bugs out of the system.