

Embedded Systems Design

Super Scrabble

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Gaurav Singal, Andrew DiMichele, Hubert Lin, Vishal Govil, Nathan Hale

Software Architecture

Main FSM loop, interrupt driven. Can be interrupted either by 100ms timer, or by a button press interrupt. FSM structure is as follows.

FSM (on timer interrupt, every 100ms):

0) Perform any setup, switch to 1

Setup States:

1) Names

- Use keypad to enter name for currently selected player
- If a player button is pressed, switch to that player
- Switch to 2 if time button pressed
- Switch to 3 if all button is pressed

2) Time: single player

- Use keypad to enter time for currently selected player
- If a player button is pressed, switch to that player
- goto 3 when all button is pressed
- goto 4 when start button is pressed

3) Time: all players

- Use keypad to enter time for all players
- goto 2 when time button is pressed
- goto 4 when play button is pressed

Possibly a short delay before the game starts

Playing states:

4) Countdown

- Decrement clock and update display
- allow for score entry and update the display
- If the numeric enter button has been pressed goto 5
- If time runs out goto 6

5) Pause

- allow for score entry if it hasn't happened already
- if enter or start is pressed, switch players and goto 4

6) buzz

- set buzzer
- after certain amount of time turn off buzzer, go to 5

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