User Manual

CS2121 - Microprocessors and Interfacing

Major Project
Microwave Simulator
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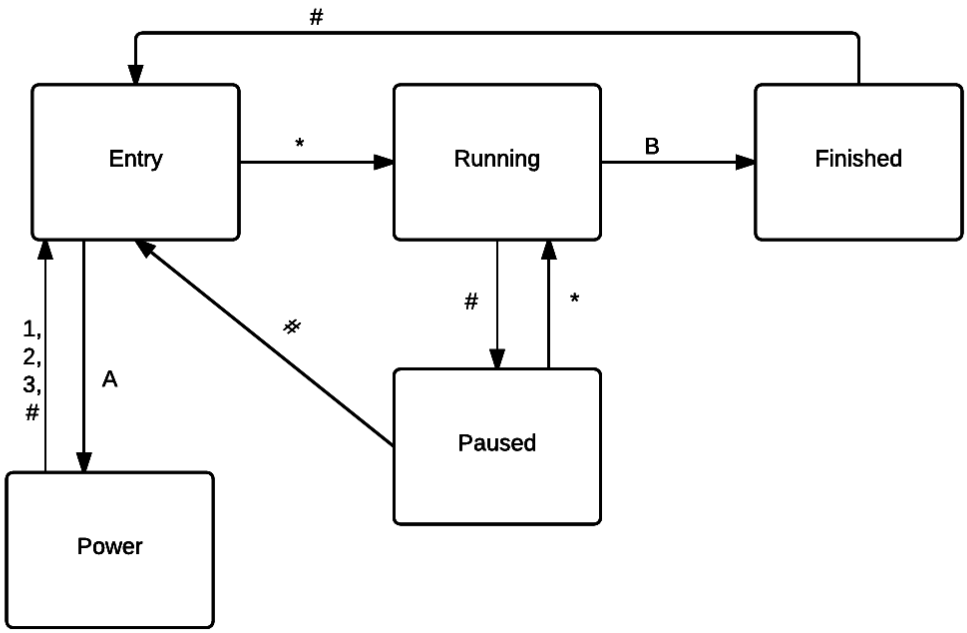
Introduction

Welcome to the user manual of this microwaver simulator. Due to unfortunate circumstances surrounding the availability of team members this simulation lacks several key areas. This simulator moves between the various modes offered by the microwave and displays the power level.

Movement between modes

The movement between modes is detailed by the following diagram, however in brief:
From Entry mode one may press A to go to power or * to enter running mode.
From Power mode one may press # to exit without making a selection, or 1, 2, or 3 to select power levels of 100, 50, and 25% respectively.
From Running mode one may press # to pause the microwave, or B to enter finished mode.
From Paused mode one may press * to resume running, or the # to return to entry mode.
From Finished mode one may press # or open the door to return to entry mode.
From any mode one may open and close the door using push buttons one and two



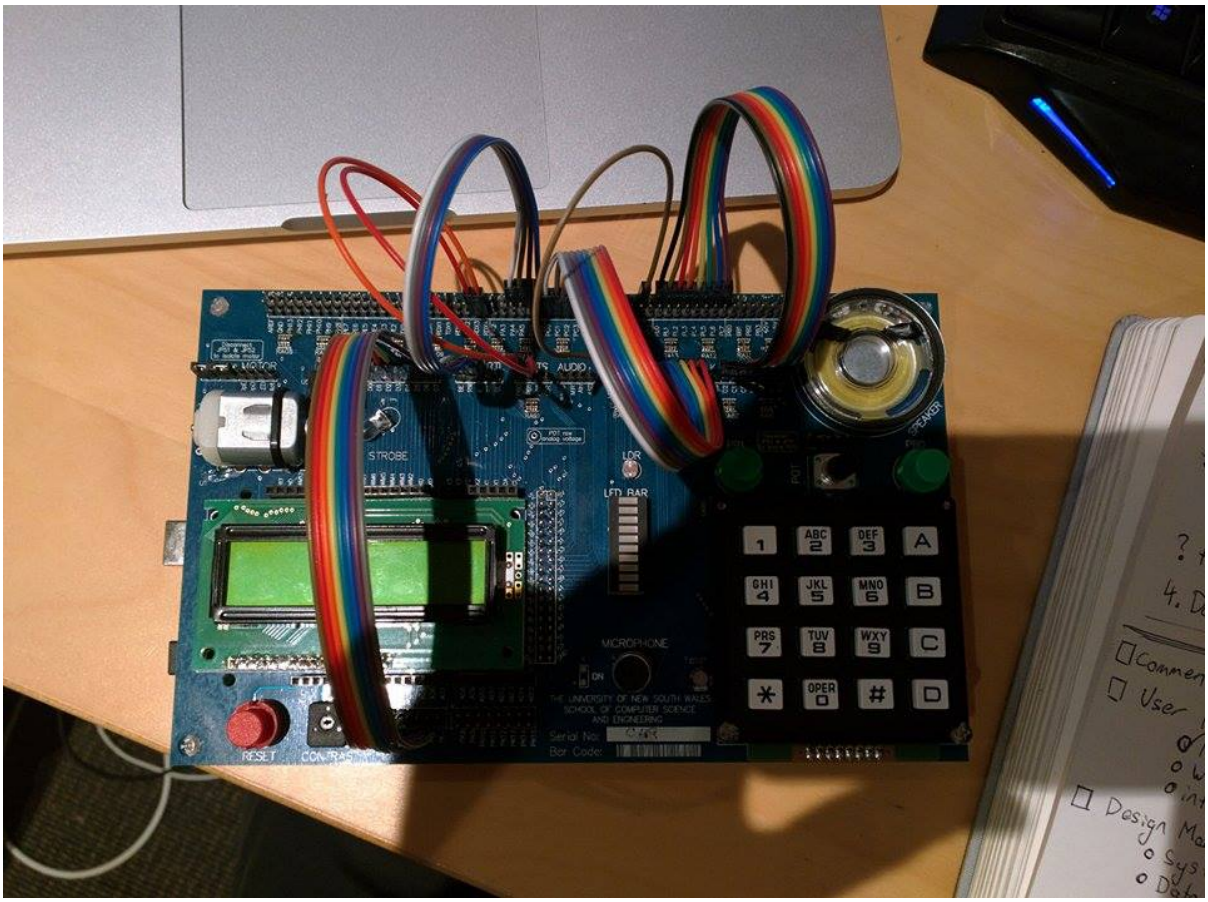
Wiring diagrams

The wiring is as follows

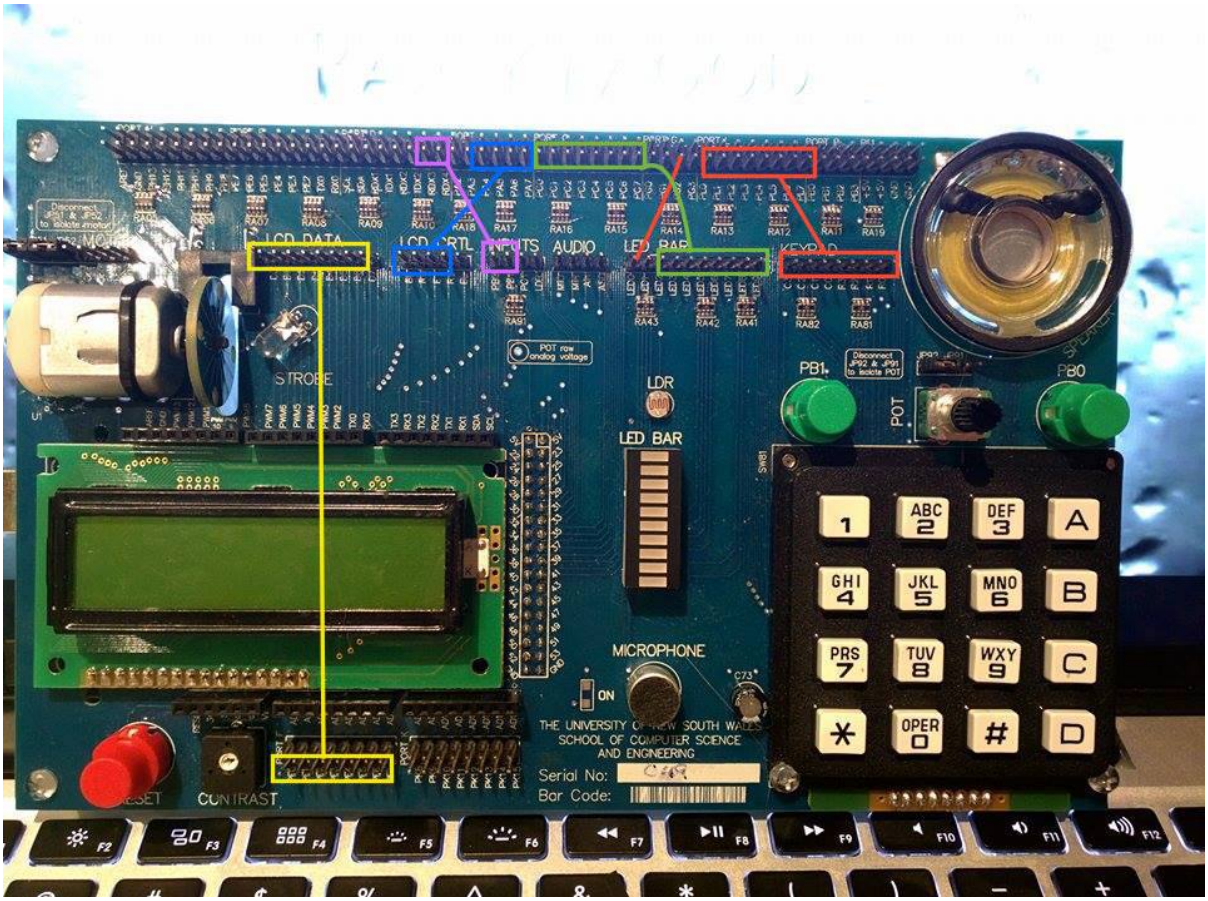
LCD DATA	PORTF
LCD Control (BE-RS)	PA4-7
PB0	RDX3
PB1	RDX4
LED0	PG2
LED2-9	PORTC
Keypad	PORTL

Here is the board wired, and on the next page is the board labeled but free of wires.

Wired Board



Wired Board


LCD DATA
AUDIO
LED BAR
KEYPAD
STROBE
LDR
LED BAR
PB1
PB0
POT
MICROPHONE
ON
THE UNIVERSITY OF NEW SOUTH WALES
SCHOOL OF COMPUTER SCIENCE
AND ENGINEERING
Serial No:
Bar Code:
CONTRAST
1
ABC 2
DEF 3
A
GHI 4
JKL 5
MNO 6
B
PRS 7
TUV 8
WXY 9
C
*
OPER 0
#
D

A guide to Interpreting the LCD and LED displays

LCD

The LCD will, at all times, display the mode that the simulator is in.
Entry mode will display a screen with 00:00 printed on it, with the original intention being this would change depending on the numbers input.
The power level selection displays text asking you to input a number deciding the power level, either 1, 2, or 3. 1 provides 100% power, 2 will provide half power and 3 will provide a quarter of the power.
The other modes will simply state their mode, with the exception of Finished, which outputs friendly text informing the user that the food is done.
Opening the door will change the display to say “Door open”, and closing this mode returns the use to their previous mode.

LED’s

The topmost red LED details the state of the door. It will light up red when the door is open, and turn off again when it is closed.
The lowest eight LED’s will display the power level, with 8 lighting up for full power, 4 for half and 2 for a quarter. The microwave will always start with full power as its default setting.