

LOG BOOK RECORD: SESSION #3

Date & Time: 2nd April 2018 9:00

General Comments:

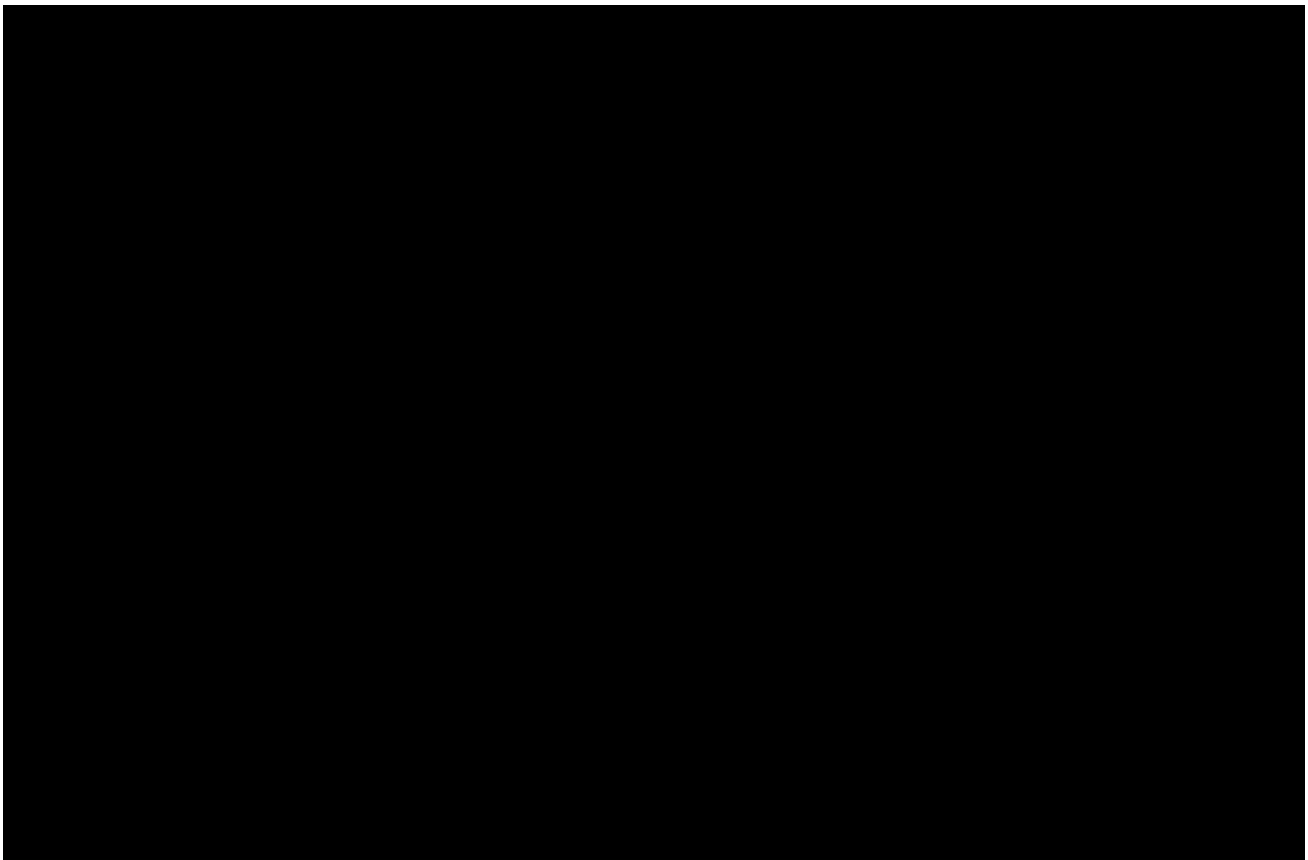
Activity 1 - Task planning and system design changes – see

[TASK_PLAN_76543_QB00700_BRANCH_Q.pdf](#) .

Planned work v achieved work during session #2 was almost to target - as I did not get too far into software design.

Activity 2 - System design

From the context diagram in session #2 I have produced an initial data flow diagram '###'.



)*#+task, -outputs test to the 2 line % 1. character)*#.

key+task, Takes the raw inputs from the keys.

timer+/"+0, #increments the software timers until they reach zero.

main, The driving force controlling the device.

)2#+task, *ontrols the)2# on& o and lashing modes.

timer+2/"+0, 3enerates the pie1o sounder drive voltages.

Level	Process Name	Inputs	Outputs	Description
1.1	)*#+task	)*#+mode "o tware timers	)*#	-outputs te%t to the 2 line % 1. character)*#& depending on the)*#+mode.)*#+mode,)*#+<2)*-=2)*#+ "2T+Tl=2)*#+*--5l:3)*#+#-:2)*#+*A:*2)2#)*#+->20*--52# so tware timers, welcome+timer egg+timer+remaining egg+overcooked+timer
1.2	key+task	keys	de?ounced +keys	Take the raw inputs rom the keys and apply de?ouncing.
1.!	timer+ /+l"0	none	"o tware timers	#ecrements the so tware timers on 1/ms or 1 second timer ticks until they reach 1ero& then stop decrementing them.
1.8	main	de?ounced +keys "o tware timers	)*#+mode "o tware timers)2#+mode pie1o+ena? le	The engine that drives the machine. Takes input rom the keys& sets the so tware timers& checks them or timeout 'reaching 1ero(and sets the)*#+mode&)2#+mode and pie1o+ena?le according to the rules dictated ?y the operational re@uirements. main+mode, =A1: +<2)*-=2 =A1: +02A#A =A1: +*--5l:3 =A1: +#-:2 =A1: +*A:*2)2# =A1: +->20*--52#
1.7	)2#+task	)2#+mode "o tware timers	)2#	Turn the)2# o & on or lashing with di erent onBo depending on)2#+mode.)2#+mode,)2#+-\$)2#+*--5l:3)2#+:2A0)A+#-:2)2#+#-:2)2#+->20*--52# so tware timers,)2#+timer

1..	timer+2+l"0	Pie1o+ena?le	Pie1o	"ound the pie1o sounder i pie1o+ena?le is true& otherwise silence the pie1o sounder
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The cmainD process drives the other processes in the device as ollows,

main process& main+mode E =Al: +<2)*-=2										
	#escription	oules								
*onditions	welcome+timer reaches 1ero	√								
	Any key pressed	√								
Actions	"et main+mode E =Al: +02A#A	√								
	"et)*#+mode E)*#+ "2T+Tl=2	√								
	"et)2#+mode E)2#+-\$	√								
	"et pie1o+ena?le E \$A)"2	√								
	"et main+mode E =Al: +02A#A	√								
	"et egg+timer+remaining E !F minutes	√								

main process& main+mode E =A1:+02A#A

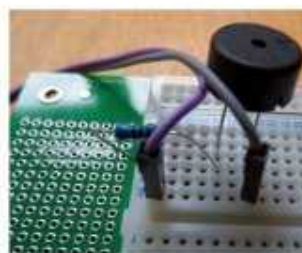
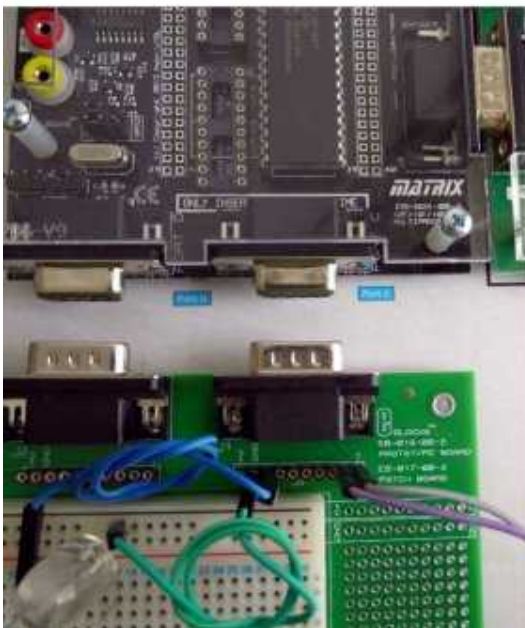
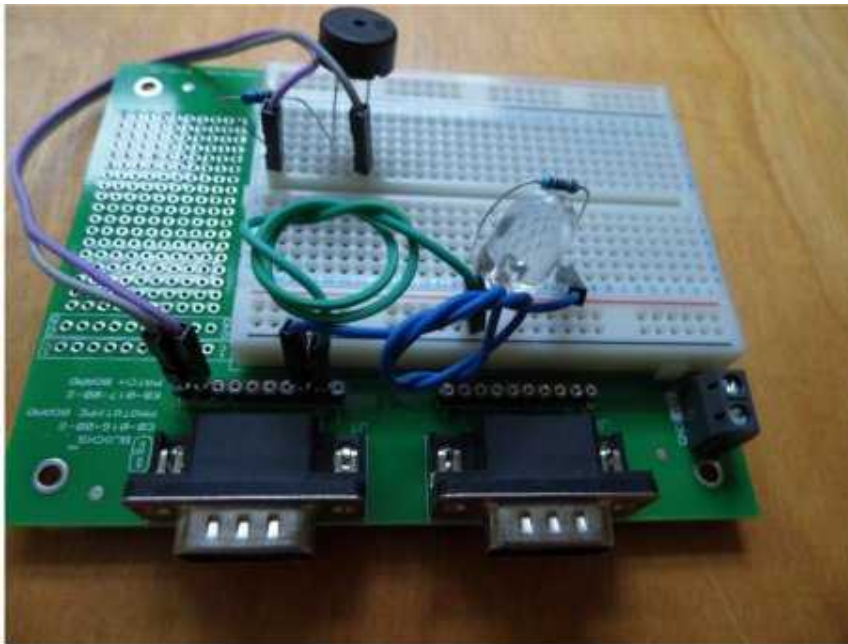
	#escription	oules									
*onditions	=inutes G1 key pressed	√									
	=inutes -1 key pressed		√								
	"econds G1/ key pressed			√							
	"econds -1/ key pressed				√						
	"tart key pressed					√					
	*ancel key pressed						√				
	uick "tart key pressed							√			
Actions	"et)*#+mode E)*#+ "2T+Tl=2	√	√	√	√						
	"et)2#+mode E)2#+-\$	√	√	√	√						
	"et pie1o+ena?le E \$A)"2	√	√	√	√						
	"et main+mode E =A1:+*--5l:3					√		√			
	"et)*#+mode E)*#+*--5l:3					√		√			
	"et)2#+mode E)2#+*--5l:3					√		√			
	"et pie1o+ena?le E \$A)"2					√		√			
	"et egg+timer+remaining E !F minutes						√	√			
	Add 1 minute to egg+timer+remaining as long is does not e%ceed . minutes	√									
	su?tract 1 minute rom egg+timer+remaining as long it does not go ?elow 2 minutes		√								
	Add 1/ seconds to egg+timer+remaining as long is does not e%ceed . minutes			√							
	"u?tract 1/ seconds rom egg+timer+remaining as long it does not go ?elow 2 minutes				√						

main process& main+mode E =Al:++--5l:3

	#escription	oules									
*onditions	egg+timer+remaining reaches lero	√									
	*ancel key pressed		√								
Actions	"et main+mode E =Al:++#-:2	√									
	"et)*#+mode E)*#+#-:2	√									
	"et)2#+mode E)2#+#-:2	√									
	"et pie1o+ena?le E T0H2	√									
	)oad egg+overcooked+timer with !/ seconds	√									
	"et main+mode E =Al:++*A:*2))2#		√								
	"et)*#+mode E)*#+*A:*2))2#		√								
	"et)2#+mode E)2#+-\$\$		√								
	"et pie1o+ena?le E \$A)"2		√								

main process& main+mode E =A1:+->20*--52#										
	#escription	oules								
*onditions	Any key pressed	√								
Actions	"et main+mode E =A1:+02A#A	√								
	"et)*#+mode E)*#+ "2T+Tl=2	√								
	"et)2#+mode E)2#+-\$\$	√								
	"et pie10+ena?le E \$A)"2	√								
	"et main+mode E =A1:+02A#A	√								

Activity 8 - "ystem assem?ly and programming



The hardware test program is a modified version of an earlier program written during the course with)2# and Pie10 sounder tests added.

Issues encountered and solutions with justification:

'1(There were no serious issues encountered during this session

Action list for the next session:

'1(Test hardware using software from this session 'session !(.
'2("tart programming the solution designed in this session.

'!(Test solution to the test plan from session 1.