

```

43. Portc.4 = 0
44. Portc.5 = 0
45. Portd.0 = 0
46. Portd.1 = 0
47. Portd.4 = 0
48. Portd.5 = 0
49. Portd.6 = 0
50. Portd.7 = 0
51. Waitms 1500
52. Do
53. T1 = 0
54. T2 = 0
55. Waitms 100
56. T1 = Getadc(0)
57. Temp1 = T1
58. Waitms 100
59. T2 = Getadc(1)
60. Temp2 = T2
61. Waitms 100
62. If Temp1 => 120 And Co = 0 Then
63. Co = 1
64. Ss = 0
65. Portc.4 = 1
66. Portc.5 = 0
67. Portd.2 = 1
68. Portd.3 = 1
69. Portd.0 = 0
70. Portd.1 = 0
71. Portd.4 = 1
72. Portd.5 = 1
73. For I = 1 To 65
74. Portb.0 = 1
75. Portb.1 = 0
76. Portb.2 = 0
77. Portb.3 = 0
78. Portd.6 = 1
79. Portd.7 = 1
80. Waitms Xx
81. Portb.0 = 0
82. Portb.1 = 1
83. Portb.2 = 0
84. Portb.3 = 0
85. Portd.6 = 0
86. Portd.7 = 0
87. Waitms Xx
88. Portb.0 = 0
89. Portb.1 = 0
90. Portb.2 = 1
91. Portb.3 = 0
92. Portd.6 = 1
93. Portd.7 = 1
94. Waitms Xx
95. Portb.0 = 0
96. Portb.1 = 0
97. Portb.2 = 0
98. Portb.3 = 1
99. Portd.6 = 0
100. Portd.7 = 0
101. Waitms Xx
102. Ss = Ss + 1
103. If Pina.7 = 0 Then
104. Gosub Qq

```

المحلق (ج) كود البرنامج:

```

1. $ regfile = "m16def.dat"
2. $crystal = 8000000
3. Config Adc = Single , Prescaler = Auto ,
   Reference = Avcc
4. Start Adc
5. Config Portd.0 = Output
   'RELAY LEFT
6. Config Portd.1 = Output
   'RELAY LEFT
7. Config Portd.2 = Output
   'RELAY RIGHT
8. Config Portd.3 = Output
   'RELAY RIGHT
9. Config Portd.4 = Output
   '1
10. Config Portd.5 = Output
   'b
11. Config Portd.6 = Output
   'BUZZER
12. Config Portd.7 = Output
   'led
13. Config Portc.4 = Output
   'SEND TO MIC.2
14. Config Portc.5 = Output
15. Config Portb.0 = Output
16. Config Portb.1 = Output
17. Config Portb.2 = Output
18. Config Portb.3 = Output
19. Config Pina.5 = Input
   'smoke1
20. Config Pina.4 = Input
   'smole2
21. Config Pina.3 = Input
   'turn on sys
22. Config Pina.2 = Input
   'turn off sys
23. Config Pina.7 = Input
   'POWER ON
24. Porta.2 = 1
25. Porta.3 = 1
26. Porta.4 = 1
27. Porta.5 = 1
28. Porta.7 = 1
29. Config Portd.6 = Output
   'conductor
30. Config Portd.7 = Output
   'Pump
31. Dim T1 As Integer
32. Dim Temp1 As Integer
33. Dim T2 As Integer
34. Dim Temp2 As Integer
35. Dim I As Byte
36. Dim Co As Byte
37. Dim Xx As Byte
38. Dim Ss As Byte
39. Xx = 5
40. Co = 0
41. I = 0
42. Ss = 0

```

167.Waitms Xx
168.Portd.6 = 0
169.Portd.7 = 0
170.Waitms Xx
171.If Pina.2 = 0 Then
172.Gosub Aa
173.End If
174.Loop
175.End If
176.If Pina.5 = 0 And Co = 0 Then
177.Co = 1
178.Portc.4 = 1
179.Portc.5 = 0
180.Portd.2 = 1
181.Portd.3 = 1
182.Portd.0 = 0
183.Portd.1 = 0
184.Portd.4 = 1
185.Portd.5 = 1
186.Waitms 100
187.Ss = 0
188.For I = 1 To 65
189.Portb.0 = 1
190.Portb.1 = 0
191.Portb.2 = 0
192.Portb.3 = 0
193.Portd.6 = 1
194.Portd.7 = 1
195.Waitms Xx
196.Portb.0 = 0
197.Portb.1 = 1
198.Portb.2 = 0
199.Portb.3 = 0
200.Portd.6 = 0
201.Portd.7 = 0
202.Waitms Xx
203.Portb.0 = 0
204.Portb.1 = 0
205.Portb.2 = 1
206.Portb.3 = 0
207.Portd.6 = 1
208.Portd.7 = 1
209.Waitms Xx
210.Portb.0 = 0
211.Portb.1 = 0
212.Portb.2 = 0
213.Portb.3 = 1
214.Portd.6 = 0
215.Portd.7 = 0
216.Waitms Xx
217.Ss = Ss + 1
218.If Pina.7 = 0 Then
219.Gosub Qq
220.End If
221.Next I
222.Do
223.Portd.6 = 1
224.Portd.7 = 1
225.Waitms Xx
226.Portd.6 = 0
227.Portd.7 = 0
228.Waitms Xx

105.End If
106.Next I
107.Do
108.Portd.6 = 1
109.Portd.7 = 1
110.Waitms Xx
111.Portd.6 = 0
112.Portd.7 = 0
113.Waitms Xx
114.If Pina.2 = 0 Then
115.Gosub Aa
116.End If
117.Loop
118.End If
119.If Temp2 => 120 And Co = 0 Then
120.Co = 2
121.Ss = 0
122.Portc.4 = 0
123.Portc.5 = 1
124.Portd.2 = 0
125.Portd.3 = 0
126.Portd.0 = 1
127.Portd.1 = 1
128.Portd.4 = 1
129.Portd.5 = 1
130.For I = 1 To 65
131.Portb.0 = 0
132.Portb.1 = 0
133.Portb.2 = 0
134.Portb.3 = 1
135.Portd.6 = 1
136.Portd.7 = 1
137.Waitms Xx
138.Portb.0 = 0
139.Portb.1 = 0
140.Portb.2 = 1
141.Portb.3 = 0
142.Portd.6 = 0
143.Portd.7 = 0
144.Waitms Xx
145.Portb.0 = 0
146.Portb.1 = 1
147.Portb.2 = 0
148.Portb.3 = 0
149.Portd.6 = 1
150.Portd.7 = 1
151.Waitms Xx
152.Portb.0 = 1
153.Portb.1 = 0
154.Portb.2 = 0
155.Portb.3 = 0
156.Portd.6 = 0
157.Portd.7 = 0
158.Waitms Xx
159.Ss = Ss + 1
160.If Pina.7 = 0 Then
161.Gosub Qq
162.End If
163.Next I
164.Do
165.Portd.6 = 1
166.Portd.7 = 1

291.End If
292.If Pina.3 = 0 Then
293.Do
294.Portd.2 = 1
295.Portd.3 = 1
296.Portc.4 = 1
297.Portc.5 = 1
298.Portd.0 = 1
299.Portd.1 = 1
300.Portd.4 = 1
301.Portd.5 = 1
302.Waitms 100
303.Portd.6 = 1
304.Portd.7 = 1
305.Waitms 100
306.Portd.6 = 0
307.Portd.7 = 0
308.Waitms 100
309.Portd.6 = 1
310.Portd.7 = 1
311.If Pina.2 = 0 Then
312.Portd.2 = 0
313.Portd.3 = 0
314.Portc.4 = 0
315.Portc.5 = 0
316.Portd.0 = 0
317.Portd.1 = 0
318.Portd.4 = 0
319.Portd.5 = 0
320.Waitms 100
321.Portd.6 = 0
322.Portd.7 = 0
323.Gosub Aa
324.End If
325.Loop
326.End If
327.Aa:
328.If Pina.2 = 0 Then
329.Portd.6 = 0
330.Portd.7 = 0
331.Portc.4 = 0
332.Portc.5 = 0
333.Portd.0 = 0
334.Portd.1 = 0
335.Portd.4 = 0
336.Portd.5 = 0
337.Waitms 100
338.Portd.2 = 0
339.Portd.3 = 0
340.End If
341.If Pina.7 = 0 Then
342.Qq:
343.Portd.6 = 0
344.Portd.7 = 0
345.Portc.4 = 0
346.Portc.5 = 0
347.Portd.0 = 0
348.Portd.1 = 0
349.Portd.4 = 0
350.Portd.5 = 0
351.Waitms 100
352.Portd.2 = 0
229.If Pina.2 = 0 Then
230.Gosub Aa
231.End If
232.Loop
233.End If
234.If Pina.4 = 0 And Co = 0 Then
235.Co = 2
236.Portc.4 = 0
237.Portc.5 = 1
238.Portd.2 = 0
239.Portd.3 = 0
240.Portd.0 = 1
241.Portd.1 = 1
242.Portd.4 = 1
243.Portd.5 = 1
244.Waitms 100
245.Ss = 0
246.For I = 1 To 65
247.Portb.0 = 0
248.Portb.1 = 0
249.Portb.2 = 0
250.Portb.3 = 1
251.Portd.6 = 1
252.Portd.7 = 1
253.Waitms Xx
254.Portb.0 = 0
255.Portb.1 = 0
256.Portb.2 = 1
257.Portb.3 = 0
258.Portd.6 = 0
259.Portd.7 = 0
260.Waitms Xx
261.Portb.0 = 0
262.Portb.1 = 1
263.Portb.2 = 0
264.Portb.3 = 0
265.Portd.6 = 1
266.Portd.7 = 1
267.Waitms Xx
268.Portb.0 = 1
269.Portb.1 = 0
270.Portb.2 = 0
271.Portb.3 = 0
272.Portd.6 = 0
273.Portd.7 = 0
274.Waitms Xx
275.Ss = Ss + 1
276.If Pina.7 = 0 Then
277.Gosub Qq
278.End If
279.Next I
280.Do
281.Portd.6 = 1
282.Portd.7 = 1
283.Waitms Xx
284.Portd.6 = 0
285.Portd.7 = 0
286.Waitms Xx
287.If Pina.2 = 0 Then
288.Gosub Aa
289.End If
290.Loop

```

411.Config Portd.1 = Output
'RELAY LEFT
412.Config Portd.2 = Output
'RELAY RIGHT
413.Config Portd.3 = Output
'RELAY RIGHT
414.Config Portd.4 = Output
'l
415.Config Portd.5 = Output
'b
416.Config Portd.6 = Output
'BUZZER
417.Config Portd.7 = Output
'led
418.Config Portc.4 = Output
'SEND TO MIC.2
419.Config Portc.5 = Output
420.Config Portb.0 = Output
421.Config Portb.1 = Output
422.Config Portb.2 = Output
423.Config Portb.3 = Output
424.Config Pina.5 = Input
'smoke1
425.Config Pina.4 = Input
'smole2
426.Config Pina.3 = Input
'turn on sys
427.Config Pina.2 = Input
'turn off sys
428.Config Pina.7 = Input
'POWER ON
429.Porta.2 = 1
430.Porta.3 = 1
431.Porta.4 = 1
432.Porta.5 = 1
433.Porta.7 = 1
434.Config Portd.6 = Output
'condactor
435.Config Portd.7 = Output
'Pump
436.Dim T1 As Integer
437.Dim Temp1 As Integer
438.Dim T2 As Integer
439.Dim Temp2 As Integer
440.Dim I As Byte
441.Dim Co As Byte
442.Dim Xx As Byte
443.Dim Ss As Byte
444.Xx = 5
445.Co = 0
446.I = 0
447.Ss = 0
448.Portc.4 = 0
449.Portc.5 = 0
450.Portd.0 = 0
451.Portd.1 = 0
452.Portd.4 = 0
453.Portd.5 = 0
454.Portd.6 = 0
455.Portd.7 = 0
456.Waitms 1500
457.Do

```

```

353.Portd.3 = 0
354.If Co = 1 Then
355.Co = 0
356.I = 0
357.For I = 1 To Ss
358.Portb.0 = 0
359.Portb.1 = 0
360.Portb.2 = 0
361.Portb.3 = 1
362.Waitms Xx
363.Portb.0 = 0
364.Portb.1 = 0
365.Portb.2 = 1
366.Portb.3 = 0
367.Waitms Xx
368.Portb.0 = 0
369.Portb.1 = 1
370.Portb.2 = 0
371.Portb.3 = 0
372.Waitms Xx
373.Portb.0 = 1
374.Portb.1 = 0
375.Portb.2 = 0
376.Portb.3 = 0
377.Waitms Xx
378.Next I
379.Elseif Co = 2 Then
380.Co = 0
381.For I = 1 To Ss
382.Portb.0 = 1
383.Portb.1 = 0
384.Portb.2 = 0
385.Portb.3 = 0
386.Waitms Xx
387.Portb.0 = 0
388.Portb.1 = 1
389.Portb.2 = 0
390.Portb.3 = 0
391.Waitms Xx
392.Portb.0 = 0
393.Portb.1 = 0
394.Portb.2 = 1
395.Portb.3 = 0
396.Waitms Xx
397.Portb.0 = 0
398.Portb.1 = 0
399.Portb.2 = 0
400.Portb.3 = 1
401.Waitms Xx
402.Next
403.End If
404.End If
405.Loop
كود المتحكم الثاني
406.$regfile = "m16def.dat"
407.Scrystal = 8000000
408.Config Adc = Single , Prescaler = Auto ,
Reference = Avcc
409.Start Adc
410.Config Portd.0 = Output
'RELAY LEFT

```

```
520.Gosub Aa
521.End If
522.Loop
523.End If
524.If Temp2 => 120 And Co = 0 Then
525.Co = 2
526.Ss = 0
527.Portc.4 = 0
528.Portc.5 = 1
529.Portd.2 = 0
530.Portd.3 = 0
531.Portd.0 = 1
532.Portd.1 = 1
533.Portd.4 = 1
534.Portd.5 = 1
535.For I = 1 To 65
536.Portb.0 = 0
537.Portb.1 = 0
538.Portb.2 = 0
539.Portb.3 = 1
540.Portd.6 = 1
541.Portd.7 = 1
542.Waitms Xx
543.Portb.0 = 0
544.Portb.1 = 0
545.Portb.2 = 1
546.Portb.3 = 0
547.Portd.6 = 0
548.Portd.7 = 0
549.Waitms Xx
550.Portb.0 = 0
551.Portb.1 = 1
552.Portb.2 = 0
553.Portb.3 = 0
554.Portd.6 = 1
555.Portd.7 = 1
556.Waitms Xx
557.Portb.0 = 1
558.Portb.1 = 0
559.Portb.2 = 0
560.Portb.3 = 0
561.Portd.6 = 0
562.Portd.7 = 0
563.Waitms Xx
564.Ss = Ss + 1
565.If Pina.7 = 0 Then
566.Gosub Qq
567.End If
568.Next I
569.Do
570.Portd.6 = 1
571.Portd.7 = 1
572.Waitms Xx
573.Portd.6 = 0
574.Portd.7 = 0
575.Waitms Xx
576.If Pina.2 = 0 Then
577.Gosub Aa
578.End If
579.Loop
580.End If
581.If Pina.5 = 0 And Co = 0 Then
```

```
458.T1 = 0
459.T2 = 0
460.Waitms 100
461.T1 = Getadc(0(
462.Temp1 = T1
463.Waitms 100
464.T2 = Getadc(1(
465.Temp2 = T2
466.Waitms 100
467.If Temp1 => 120 And Co = 0 Then
468.Co = 1
469.Ss = 0
470.Portc.4 = 1
471.Portc.5 = 0
472.Portd.2 = 1
473.Portd.3 = 1
474.Portd.0 = 0
475.Portd.1 = 0
476.Portd.4 = 1
477.Portd.5 = 1
478.For I = 1 To 65
479.Portb.0 = 1
480.Portb.1 = 0
481.Portb.2 = 0
482.Portb.3 = 0
483.Portd.6 = 1
484.Portd.7 = 1
485.Waitms Xx
486.Portb.0 = 0
487.Portb.1 = 1
488.Portb.2 = 0
489.Portb.3 = 0
490.Portd.6 = 0
491.Portd.7 = 0
492.Waitms Xx
493.Portb.0 = 0
494.Portb.1 = 0
495.Portb.2 = 1
496.Portb.3 = 0
497.Portd.6 = 1
498.Portd.7 = 1
499.Waitms Xx
500.Portb.0 = 0
501.Portb.1 = 0
502.Portb.2 = 0
503.Portb.3 = 1
504.Portd.6 = 0
505.Portd.7 = 0
506.Waitms Xx
507.Ss = Ss + 1
508.If Pina.7 = 0 Then
509.Gosub Qq
510.End If
511.Next I
512.Do
513.Portd.6 = 1
514.Portd.7 = 1
515.Waitms Xx
516.Portd.6 = 0
517.Portd.7 = 0
518.Waitms Xx
519.If Pina.2 = 0 Then
```

644.Portd.3 = 0
645.Portd.0 = 1
646.Portd.1 = 1
647.Portd.4 = 1
648.Portd.5 = 1
649.Waitms 100
650.Ss = 0
651.For I = 1 To 65
652.Portb.0 = 0
653.Portb.1 = 0
654.Portb.2 = 0
655.Portb.3 = 1
656.Portd.6 = 1
657.Portd.7 = 1
658.Waitms Xx
659.Portb.0 = 0
660.Portb.1 = 0
661.Portb.2 = 1
662.Portb.3 = 0
663.Portd.6 = 0
664.Portd.7 = 0
665.Waitms Xx
666.Portb.0 = 0
667.Portb.1 = 1
668.Portb.2 = 0
669.Portb.3 = 0
670.Portd.6 = 1
671.Portd.7 = 1
672.Waitms Xx
673.Portb.0 = 1
674.Portb.1 = 0
675.Portb.2 = 0
676.Portb.3 = 0
677.Portd.6 = 0
678.Portd.7 = 0
679.Waitms Xx
680.Ss = Ss + 1
681.If Pina.7 = 0 Then
682.Gosub Qq
683.End If
684.Next I
685.Do
686.Portd.6 = 1
687.Portd.7 = 1
688.Waitms Xx
689.Portd.6 = 0
690.Portd.7 = 0
691.Waitms Xx
692.If Pina.2 = 0 Then
693.Gosub Aa
694.End If
695.Loop
696.End If
697.If Pina.3 = 0 Then
698.Do
699.Portd.2 = 1
700.Portd.3 = 1
701.Portc.4 = 1
702.Portc.5 = 1
703.Portd.0 = 1
704.Portd.1 = 1
705.Portd.4 = 1

582.Co = 1
583.Portc.4 = 1
584.Portc.5 = 0
585.Portd.2 = 1
586.Portd.3 = 1
587.Portd.0 = 0
588.Portd.1 = 0
589.Portd.4 = 1
590.Portd.5 = 1
591.Waitms 100
592.Ss = 0
593.For I = 1 To 65
594.Portb.0 = 1
595.Portb.1 = 0
596.Portb.2 = 0
597.Portb.3 = 0
598.Portd.6 = 1
599.Portd.7 = 1
600.Waitms Xx
601.Portb.0 = 0
602.Portb.1 = 1
603.Portb.2 = 0
604.Portb.3 = 0
605.Portd.6 = 0
606.Portd.7 = 0
607.Waitms Xx
608.Portb.0 = 0
609.Portb.1 = 0
610.Portb.2 = 1
611.Portb.3 = 0
612.Portd.6 = 1
613.Portd.7 = 1
614.Waitms Xx
615.Portb.0 = 0
616.Portb.1 = 0
617.Portb.2 = 0
618.Portb.3 = 1
619.Portd.6 = 0
620.Portd.7 = 0
621.Waitms Xx
622.Ss = Ss + 1
623.If Pina.7 = 0 Then
624.Gosub Qq
625.End If
626.Next I
627.Do
628.Portd.6 = 1
629.Portd.7 = 1
630.Waitms Xx
631.Portd.6 = 0
632.Portd.7 = 0
633.Waitms Xx
634.If Pina.2 = 0 Then
635.Gosub Aa
636.End If
637.Loop
638.End If
639.If Pina.4 = 0 And Co = 0 Then
640.Co = 2
641.Portc.4 = 0
642.Portc.5 = 1
643.Portd.2 = 0

768.Portb.0 = 0
769.Portb.1 = 0
770.Portb.2 = 1
771.Portb.3 = 0
772.Waitms Xx
773.Portb.0 = 0
774.Portb.1 = 1
775.Portb.2 = 0
776.Portb.3 = 0
777.Waitms Xx
778.Portb.0 = 1
779.Portb.1 = 0
780.Portb.2 = 0
781.Portb.3 = 0
782.Waitms Xx
783.Next I
784.Elseif Co = 2 Then
785.Co = 0
786.For I = 1 To Ss
787.Portb.0 = 1
788.Portb.1 = 0
789.Portb.2 = 0
790.Portb.3 = 0
791.Waitms Xx
792.Portb.0 = 0
793.Portb.1 = 1
794.Portb.2 = 0
795.Portb.3 = 0
796.Waitms Xx
797.Portb.0 = 0
798.Portb.1 = 0
799.Portb.2 = 1
800.Portb.3 = 0
801.Waitms Xx
802.Portb.0 = 0
803.Portb.1 = 0
804.Portb.2 = 0
805.Portb.3 = 1
806.Waitms Xx
807.Next
808.End If
809.End If

Loop

706.Portd.5 = 1
707.Waitms 100
708.Portd.6 = 1
709.Portd.7 = 1
710.Waitms 100
711.Portd.6 = 0
712.Portd.7 = 0
713.Waitms 100
714.Portd.6 = 1
715.Portd.7 = 1
716.If Pina.2 = 0 Then
717.Portd.2 = 0
718.Portd.3 = 0
719.Portc.4 = 0
720.Portc.5 = 0
721.Portd.0 = 0
722.Portd.1 = 0
723.Portd.4 = 0
724.Portd.5 = 0
725.Waitms 100
726.Portd.6 = 0
727.Portd.7 = 0
728.Gosub Aa
729.End If
730.Loop
731.End If
732.Aa:
733.If Pina.2 = 0 Then
734.Portd.6 = 0
735.Portd.7 = 0
736.Portc.4 = 0
737.Portc.5 = 0
738.Portd.0 = 0
739.Portd.1 = 0
740.Portd.4 = 0
741.Portd.5 = 0
742.Waitms 100
743.Portd.2 = 0
744.Portd.3 = 0
745.End If
746.If Pina.7 = 0 Then
747.Qq:
748.Portd.6 = 0
749.Portd.7 = 0
750.Portc.4 = 0
751.Portc.5 = 0
752.Portd.0 = 0
753.Portd.1 = 0
754.Portd.4 = 0
755.Portd.5 = 0
756.Waitms 100
757.Portd.2 = 0
758.Portd.3 = 0
759.If Co = 1 Then
760.Co = 0
761.I = 0
762.For I = 1 To Ss
763.Portb.0 = 0
764.Portb.1 = 0
765.Portb.2 = 0
766.Portb.3 = 1
767.Waitms Xx