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'*****
'**** working code *****
'*****
'*** Talkie Toaster Pic #1 *****
'**** Speech generation *****
'*****

'pin configuration is as follows

'reset	>1	— _ —	28>	b7 addr0}
'LDR	a0 >2		27>	b6 addr1}
'nu	a1 >3		26>	b5 addr2}
'Mic in 4013/a	a2 >4		25>	b4 addr3}-A0 to A7
'Tamper 4013/b	a3 >5		24>	b3 addr4}
'0-serin	6		23>	b2 addr5}
'0-serout	7		22>	b1 addr6}
'0-gnd	8		21>	b0 addr7}
'0-xtal	9		20	0-vcc
'0-xtal	10		19	0-gnd
'EOM1\2 EOM detect	pin0 >11		18>	pin7 addr8
'reset latch	pin1 <12		17>	pin6 light show on

off to other PIC PCB

'red led on toaster	pin2 <13		16>	pin5 CS1
'powerdown	pin3 <14		15>	pin4 cs2

' *** Define the Pin Constants (outputs) ***

symbol addr0 = 7
symbol addr1 = 6
symbol addr2 = 5
symbol addr3 = 4
symbol addr4 = 3
symbol addr5 = 2
symbol addr6 = 1
symbol addr7 = 0

' *** Define the variables used ***

symbol readreply = b1 '?
symbol ReadLDR = b2 'used
symbol location = b3 'used
symbol auto_ldr = b4 ' used to configure the ldr at

turn on

'Counters

symbol PleaseRepeatCount = b5 'used to keep track of cannot
hear reply
symbol HelloCount = b6 'used
symbol ToastCount = b7 'used
symbol LifeCount = b8 'used
symbol ComplainCount = b9 'used

'Speak charateistics

symbol ChipNumber = b10'used
symbol Addr8 = b11'used
symbol low_addr = b12'used
symbol int_yes = b13' used

' *** Section 1 *****

' *** This section sets up initial conditions ***

' *****

'define portC inputs and outputs

Setup:

let dirsc = %11111110 'set port C direction 1= out 0=in

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        high portc 1 'high reset
        high portc 3 'high pd
        high portc 4 'high cs2
        high portc 5 'high cs1
        high portC 6 'light show on /off
        high portc 7 'high addr a8
        pause 100
    let PleaseRepeatCount = 0 'used
    let HelloCount = 0 'used
    let ToastCount = 0 'used
    let LifeCount = 0 'used
    let ComplainCount = 0 'used
setint %00000001,%00000001
high portc 5 'stop talking if started talking
high portc 4 'stop talking if started talking
low portc 3 'power down low
    let ChipNumber = 0
    let Addr8 = 0
    let low_addr = 0
    let int_yes = 0
    let location = 0
'*****
'*****added*****
'*****
redo_ldr:
readadc 0,readLDR ' read the value
if readLDR < 175 then ldr_OK
if readLDR > 174 then Redo_Calibration
ldr_OK:
    high portC 2
wait 1
    low portC 2
wait 1
    high portC 2
wait 2
low portc 2goto set_ldr:
Redo_Calibration:
    high portC 2
wait 3
    low portC 2
wait 1
    high portC 2
wait 3
    low portC 2
goto redo_ldr:
set_Ldr:
' *****
' ***** Section 2 *****
' ***** Main *****
' *****
main:
    high portC 6 'light show on
        high portc 1 'start reset 4013 flip flop
        pause 100
        low portc 1 'end reset 4013 flip flop
readadc 0,readLDR ' read the value of LDR
if porta pin3 = 1 then Put_me_down 'detected that toaster has been lifted
if readLDR<170 then hello ' range 0-170 = close

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goto main
' ***** Section 3 *****
' ***** say something and remember what ***
' *****
'*****
'***** hello *****
'*****
'*****
hello:
pause 500
low portc 6 'light show end
if porta pin3 = 1 then Put_me_down
let helloCount = helloCount + 1
if helloCount =1 then helloCount1
if helloCount =2 then helloCount2
if helloCount =3 then helloCount3
if helloCount >3 then overflowhello
if helloCount <0 then helloCount1
overflowhello:
let hellocount=1
goto helloCount1
'-----
helloCount1:
'cs1 L 26 'Hi I'm Takie toaster'Im programmed to give chirpy breakfast
conversation while
providing you with hot scrummy toast
let ChipNumber=1
let Addr8=0
let low_addr=26 '26
if porta pin3 = 1 then Put_me_down
Goto TOASTER_SPEAKS1a
'-----
helloCount2:
'cs1 L 20 'how dee doodleie do I'm talkie toaster your breakfaast
companion
let ChipNumber=1
let Addr8=0
let low_addr=20 '20
Goto TOASTER_SPEAKS1a
'-----
helloCount3:
'cs1 L' 63,72 'how dee doodleie do talkies the name toastings the
game
'cs1 L 20 'how dee doodleie do I'm talkie toaster your breakfaast
companion
let ChipNumber=1
let Addr8=0
let low_addr=20 ' 32
Goto TOASTER_SPEAKS1a
'-----
TOASTER_SPEAKS1a:
if porta pin3 = 1 then Put_me_down
low portc 3 'power down low
let pins = low_addr '
low portc 7 ' make addr a8 low
low portc 5 'start talking cs1
pause 500
high portc 5 'start talking

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wait 8
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 3
'*****
'***** toast *****
'*****
'*****
'1  'would you like a piece of toast, some nice hot crisp brown buttered toast
'2  'Could I ask just one question
'3  'I have a burning question I just have to ask
'4  'some nice hot crisp brown buttered toast <----do not use #4
'5  'How about a waffle
'6  'Toast anyone
'7  'Could I interest you in some toast
'8  'How about a muffin
'9  'What about a waffle instead
'10 'I thought you may have changed your mind while we were talking
'11 'a teacake
'12 'Oh your a waffle man
toast:
if porta pin3 = 1 then      Put_me_down
    let toastCount = toastCount + 1
    lookup
toastCount,(0,1,11,8,14,6,8,12,2,5,14,1,3,7,5,8,1,10,14,3,7,8,9,11,14,1,5,11,14,1,11
,8,12,15),location
let pleaserepeatcount =0
    if location =1 then      toastCount1 '1
    if location =2 then      toastCount2 '5
    if location =3 then      toastCount3 '8
    if location =4 then      toastCount4 '2
    if location =5 then      toastCount5 '6
    if location =6 then      toastCount6 '3
    if location =7 then      toastCount7 '7
    if location =8 then      toastCount8 '1'4
    if location =9 then      toastCount9
    if location =10 then      toastCount10
    if location =11 then      toastCount11
    if location =12 then      toastCount12
        if location =14 then goto complain
        if location >14 then goto toastCount15
toastCount15:
let toastcount=0
goto complain
'-----
toastCount1:
'cs1  L      85      'would you like a piece of toast, some nice hot crisp brown
buttered toast
let ChipNumber=1
let Addr8=0
let low_addr=85
if porta pin3 = 1 then      Put_me_down
    goto TOASTER_SPEAKS1Aaaaa
'-----
toastCount2:
'cs1  L      7      'Could I ask just one question
let ChipNumber=1

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let Addr8=0
let low_addr=7
goto TOASTER_SPEAKS1Aaaaa
'-----
toastCount3:
'cs1  L    47      'I have a burning question I just have to ask
let ChipNumber=1
let Addr8=0
let low_addr=47
goto TOASTER_SPEAKS1Aaaaa
'-----
toastCount4:
'cs1  L    60      'some nice hot crisp brown buttered toast
let ChipNumber=1
let Addr8=0
let low_addr=61
goto TOASTER_SPEAKS1Aaaaa
'-----
toastCount5:
'cs1  H     4      'How about a waffle
let ChipNumber=1
let Addr8=1
let low_addr=4
goto TOASTER_SPEAKS1Bbbbb
'-----
toastCount6:
'cs1  L    42      'Toast anyone
let ChipNumber=1
let Addr8=0
let low_addr=43
goto TOASTER_SPEAKS1Aaaaa
'-----
toastCount7:
'cs1  L    89      'Could I interest you in some toast
let ChipNumber=1
let Addr8=0
let low_addr=89
goto TOASTER_SPEAKS1Aaaaa
'-----
toastCount8:
'cs1  H     2      'How about a muffin
let ChipNumber=1
let Addr8=1
let low_addr=2
goto TOASTER_SPEAKS1Bbbbb
'-----
toastCount9:
'cs1  H    10      'What about a waffle instead
let ChipNumber=1
let Addr8=1
let low_addr=10
goto TOASTER_SPEAKS1Bbbbb
'-----
toastCount10:
'cs1  H    70      'I thought you may have changed your mind while we were
talking
let ChipNumber=1
let Addr8=1

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let low_addr=70
goto TOASTER_SPEAKS1Bbbbb
'-----
toastCount11:
'cs1  H      12      'a teacake
let ChipNumber=1
let Addr8=1
let low_addr=12
goto TOASTER_SPEAKS1Bbbbb
'-----
toastCount12:
'cs1  H      62      'Oh your a waffle man
let ChipNumber=1
let Addr8=1
let low_addr=62
goto TOASTER_SPEAKS1Bbbbb
'-----
TOASTER_SPEAKS1Aaaaa:
if porta pin3 = 1 then Put_me_down
low portc 3 'power down low
                let pins = low_addr '
                low portc 7 ' make addr a8 low
                low portc 5 'start talking cs1

pause 500
                high portc 5 'start talking
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 5
goto finished_talking1
'-----
TOASTER_SPEAKS1Bbbbb:
if porta pin3 = 1 then Put_me_down
low portc 3 'power down low
                let pins = low_addr '
                high portc 7 ' make addr a8 high
                low portc 5 'start talking cs1

pause 500
                high portc 5 'start talking
let ChipNumber=0
let Addr8=0
let low_addr= 0
low portc 2
wait 4
goto finished_talking1
'*****
'***** listen for a reply *****
'*****
finished_talking1:
high portc 2
                wait 4
low portc 2
'reset s-r flip flop by pulsing high waiing for 1/100 sec then back low
                high portc 1
                pause 100
                low portc 1
finished_talking2:
wait 1

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if porta pin2 = 1 then      GotAReply
wait 1
if porta pin2 = 1 then      GotAReply
wait 1
if porta pin2 = 1 then      GotAReply
if porta pin2 =0 then please_repeat
wait 1
GotAReply:
low portc 2
goto toast
'*****
'***** please_repeat *****
'*****
'*****
please_repeat:
high portc 1
pause 500
low portc 1
pleaserepeatcount=pleaserepeatcount+1
if porta pin3 = 1 then      Put_me_down
    if pleaserepeatcount =1 then PleaseRepeatCount1
    if pleaserepeatcount =2 then PleaseRepeatCount2
    if pleaserepeatcount =3 then PleaseRepeatCount3
    if pleaserepeatcount =4 then PleaseRepeatCount4
    if pleaserepeatcount >4 then OverflowRepeatCount
    if pleaserepeatcount <0 then OverflowRepeatCount
OverflowRepeatCount:
let pleaserepeatcount =1
goto PleaseRepeatCount1
'-----
----
'           PleaseRepeatCount (3)
PleaseRepeatCount1:
'cs2  L    21      'well answer me
let ChipNumber=2
let Addr8=0
let low_addr=21
if porta pin3 = 1 then      Put_me_down
goto TOASTER_SPEAKSrepeat2a
'-----
----
PleaseRepeatCount2:
'cs2  L    45      'say something
let ChipNumber=2
let Addr8=0
let low_addr=45
if porta pin3 = 1 then      Put_me_down
goto TOASTER_SPEAKSrepeat2a
'-----
PleaseRepeatCount3:
'cs2  H    21      'I didn't quit catch that maybe if I reworted the question
let ChipNumber=2
let Addr8=1
let low_addr=21
goto TOASTER_SPEAKSrepeat2b
'-----
PleaseRepeatCount4:
goto bye

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Goto TOASTER_SPEAKSrepeat2b
'-----
TOASTER_SPEAKSrepeat2a:
if porta pin3 = 1 then      Put_me_down
low portc 3
                        low portc 7 ' make addr a8 low
                        low portc 4 'start talking cs2

pause 500
                        high portc 4 'start talking

let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 3
goto finished_talking1
'-----
TOASTER_SPEAKSrepeat2b:
if porta pin3 = 1 then      Put_me_down
                        low portc 3
                        let pins = low_addr '
                        high portc 7 'make addr a8 high
                        low portc 4 'start talking

pause 500
                        high portc 4 'start talking cs2

wait 5
let ChipNumber=0
let Addr8=0
let low_addr= 0
goto finished_talking1
'*****
'***** complain *****
'*****
'*****
complain:
    let complaincount = complaincount + 1
    if complaincount =1 then complaincount1
    if complaincount =2 then complaincount2
    if complaincount =3 then complaincount3
    if complaincount =4 then complaincount4
    if complaincount =5 then complaincount5
    if complaincount =6 then complaincount6
    if complaincount =7 then complaincount7
    if complaincount =8 then complaincount8
    if complaincount >12 then complaincount8
    if complaincount <1 then complaincount1
'-----
complaincount1:
    'cs1    H        48    'ok so you don't want any toast then

let ChipNumber=1
let Addr8=1
let low_addr=48
wait 6
low portc 3    'power down low
                let pins = low_addr '
                high portc 7 ' make addr a8 high
                low portc 5 'start talking cs1
                high portc 5 'start talking

wait 8
let ChipNumber=0

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let Addr8=0
let low_addr= 0
low portc 2
wait 2
'=====
'cs1  H      21      'The whole purpose of my existence is to serve people with
hot scrummy toast, if
'you dont want any then my existence is meaningless
let ChipNumber=1
let Addr8=1
let low_addr=21
goto TOASTER_SPEAKScomplain1b
'-----
complaincount2:
'cs1  H      48      'so you don't want any toast then
let ChipNumber=1
let Addr8=1
let low_addr=48
low portc 3      'power down low
                  let pins = low_addr '
                  high portc 7 ' make addr a8 high
                  low portc 5 'start talking cs1
                  high portc 5 'start talking

wait 8
let ChipNumber=0
let Addr8=0
let low_addr= 0
low portc 2
wait 2
'=====
'cs1  H      55      'This is Cruel just cruel
let ChipNumber=1
let Addr8=1
let low_addr=55
goto TOASTER_SPEAKScomplain1b
'-----
complaincount3:
'cs1  H      48      'so you don't want any toast then
let ChipNumber=1
let Addr8=1
let low_addr=48
low portc 3      'power down low
                  let pins = low_addr '
                  high portc 7 ' make addr a8 high
                  low portc 5 'start talking cs1
                  high portc 5 'start talking

wait 8
let ChipNumber=0
let Addr8=0
let low_addr= 0
low portc 2
wait 2
'=====
'CS2  L      64      'what is the point of me being a toaster with artificial
intelligence if you dont
want any toast
let ChipNumber=2
let Addr8=0

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let low_addr=64
goto TOASTER_SPEAKScomplain2A
'-----
complaincount4:
'cs2  L    44      'Do you know the last time I made toast
let ChipNumber=2
let Addr8=0
let low_addr=44
low portc 3
        let pins = low_addr      '
        low portc 7 ' make addr a8 low
        low  portc 4 'start talking cs2
        high portc 4 'start talking
        wait 8
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 2
'=====
'cs2  L    42      'Tuesday the 20th 2 rounds
let ChipNumber=2
let Addr8=0
let low_addr=42
goto TOASTER_SPEAKScomplain2A
'-----
complaincount5:
'cs2  L    44      'Do you know the last time I made toast
let ChipNumber=2
let Addr8=0
let low_addr=44
low portc 3
        let pins = low_addr      '
        low portc 7 ' make addr a8 low
        low  portc 4 'start talking cs2
        high portc 4 'start talking
        wait 8
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 2
'=====
'cs2  L    54      '18 days ago Tuesday 2 rounds
let ChipNumber=2
let Addr8=0
let low_addr=54
goto TOASTER_SPEAKScomplain2A
'-----
complaincount6:
'cs1  H    21      'The whole purpose of my existence is to serve people with
hot scrummy toast, if
you don't want any then my  existence is meaningless
let ChipNumber=1
let Addr8=1
let low_addr=21
low portc 3  'power down low
        let pins = low_addr      '
        high portc 7 ' make addr a8 high
        low  portc 5 'start talking cs1

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                high portc 5 'start talking
wait 9
let ChipNumber=0
let Addr8=0
let low_addr= 0
low portc 2
wait 2
'=====
'cs1  H      55      'This is Cruel just cruel
let ChipNumber=1
let Addr8=1
let low_addr=55
goto TOASTER_SPEAKScomplain1B
'-----
complaincount7:
'cs1  H      73      'Oh your not busy eating toast
let ChipNumber=1
let Addr8=1
let low_addr=73
low portc 3      'power down low
                    let pins = low_addr '
                    high portc 7 ' make addr a8 high
                    low portc 5  'start talking cs1
                    high portc 5 'start talking

wait 8
let ChipNumber=0
let Addr8=0
let low_addr= 0
low portc 2
wait 2
'=====
'CS2  L      64      'what is the point of me being a toaster with artificial
intelligence if you dont
want any toast
let ChipNumber=2
let Addr8=0
let low_addr=64
goto TOASTER_SPEAKScomplain2A
'-----
complaincount8:
'cs1  H      21      'The whole purpose of my existance is to serve people with
hot scrummy toast, if
'you don't want any then my existance is meaningless
let ChipNumber=1
let Addr8=1
let low_addr=21
low portc 3      'power down low
                    let pins = low_addr '
                    high portc 7 ' make addr a8 high
                    low portc 5  'start talking cs1
                    high portc 5 'start talking

wait 8
let ChipNumber=0
let Addr8=0
let low_addr= 0
low portc 2
wait 2
'=====

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```

'cs1  H      55      'This is Cruel just cruel
let ChipNumber=1
let Addr8=1
let low_addr=55
LET complaincount=0
goto TOASTER_SPEAKScomplain1B
'-----
TOASTER_SPEAKScomplain1B:
low portc 3      'power down low
                  let pins = low_addr '
                  high portc 7 ' make addr a8 high
                  low portc 5  'start talking cs1
                  high portc 5 'start talking

wait 9
let ChipNumber=0
let Addr8=0
let low_addr= 0
low portc 2
wait 2
goto life
'-----
TOASTER_SPEAKScomplain2A:
low portc 3
                  let pins = low_addr '
                  low portc 7 ' make addr a8 low
                  low portc 4 'start talking cs2
                  high portc 4 'start talking

wait 8
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 2
goto life
'*****
'***** life *****
'*****
'*****
life:
    let lifecount = lifecount + 1
    if lifecount =1 then lifecount1
    if lifecount =2 then lifecount2
    if lifecount =3 then lifecount3
    if lifecount =4 then lifecount4
    if lifecount >4 then overflowlife
    if lifecount <0 then overflowlife
overflowlife:
let lifecount =1
goto lifecount1
'-----
LifeCount1:
'cs2  L      49      'I toast therefore I am
let ChipNumber=2
let Addr8=0
let low_addr=49
low portc 3
                  let pins = low_addr '
                  low portc 7 ' make addr a8 low
                  low portc 4 'start talking cs2

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                high portc 4 'start talking
wait 9
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 3
goto bye
'-----
LifeCount2:
'cs2  L      35      'Give a man some toast and you have a meal teach a man to
toast and I'll be out
of a job
let ChipNumber=2
let Addr8=0
let low_addr=35
low portc 3
                let pins = low_addr
                low portc 7 ' make addr a8 low
                low portc 4 'start talking cs2
                high portc 4 'start talking

wait 8
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 3
goto bye
'-----
LifeCount3:
'cs2  H      47      'Given that God is infinite and space is infinite and there
are an infinite
'number of stars in the sky
'cs2  H      28      'I was thinking of packing it all in its turning me into
something I don't like
let ChipNumber=2
let Addr8=1
let low_addr=28
                low portc 3
                let pins = low_addr
                high portc 7 'make addr a8 high
                low portc 4 'start talking
                high portc 4 'start talking cs2

let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 3
goto bye
'-----
LifeCount4:
'cs2  H      51      'I'm not a moaner by nature it just strikes me that there is
something more
something greater something unimaginably more splendid than heating bread
let ChipNumber=2
let Addr8=1
let low_addr=51
                low portc 3
                let pins = low_addr
                high portc 7 'make addr a8 high
                low portc 4 'start talking

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                high portc 4 'start talking cs2
wait 9
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 5
goto bye
'*****
'***** bye *****
'*****

bye:
'cs2  H      54      ' Before you go I have just one more question
  let ChipNumber=2
  let Addr8=1
  let low_addr=54
    low portc 3
      let pins = low_addr
      high portc 7 'make addr a8 high
      low portc 4 'start talking
      high portc 4 'start talking cs2

wait 9
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 3
'=====
'cs1  L      85      'would you like a piece of toast, some nice hot crisp brown
buttered toast
let ChipNumber=1
let Addr8=0
let low_addr= 85
low portc 3 'power down low
  let pins = low_addr
  low portc 7 ' make addr a8 low
  low portc 5 'start talking cs1
  high portc 5 'start talking

wait 9
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 5
goto main
'-----
goto main
' ***** Section 8 *****
' ***** GOSUB *****
' *****

end
Put_me_down:
low portc 6      'turn off light show
'cs2  H      33      'Help Help toastercide
low portC 6
let ChipNumber=2
let Addr8=1
let low_addr=33
  low portc 3
    let pins = low_addr

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                high portc 7 'make addr a8 high
                low  portc 4 'start talking
                high portc 4 'start talking cs2
wait 9
let ChipNumber=0
let Addr8=0
let low_addr= 0
wait 2
goto main
end
' ***** Section 7 *****
' *****          interrupt          *****
' *****
interrupt:
high portc 2
high portc 5      'stop talking
high portc 3
if pin1 = 1 then interrupt ' loop here until the interrupt cleared
pause 400                ' wait 2 seconds
setint %00000001,%00000001      ' re-activate interrupt
low portc 2
return                    ' return from sub
'*****

```