

This programming guide is for use with:

- A programmable music box.
- PICAXE programming editor software.

Limitations of use:

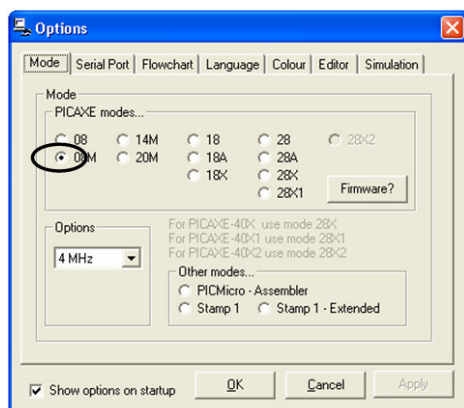
- *It must be used with kits from Kitronik.*
- *It can't be used for commercial gain.*

There is only one task, which is to make the board play a tune when the switch is activated.

Start the PICAXE programming editor software

- Press 'Start'.
- Select 'All Programs'.
- Select 'Revolution'.
- Run the application 'PICAXE programming editor'.

When the software starts a menu is displayed allowing the PICAXE chip to be selected:



Make sure that a 08M chip is selected.
(If this menu is not shown at start up select the view menu, then options.)

You are going to write the software using a flowchart. To do this you will need to select the flowchart button:



We are now ready to build up the flowchart. The application loads with a start box at the top of the screen. We are going to add to this.

Each IO pin on the processor has been given a number so that it can either be tested or turned on or off.

This number is different to the pin number on the chip.

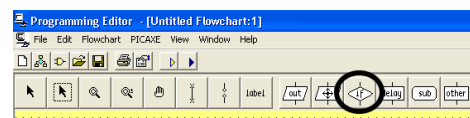
Your music box board has been wired up as follows:

Connection	Number
LED (not used)	1
Sounder	2
Switch	3

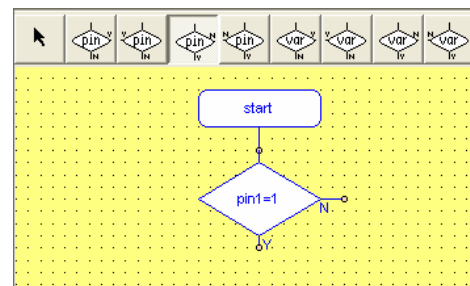
So to reference the switch we would use 3.

The first thing the software needs to do is check if the switch is pressed:

- Select the 'if commands' menu.



- Select the condition to test a pin with the 'Y' at the bottom and 'N' on the right.
- Click on the flowchart below the 'let pins = 0' to add the 'if command'.



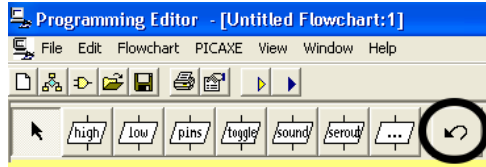
The switch is on number 3 and we need it to wait until this becomes high (1). To do this:



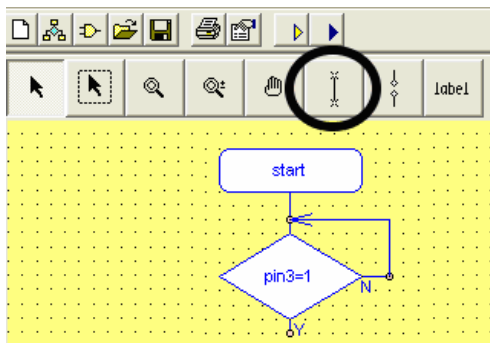
- Select the Pin1=1 if command. (Right click to deselect the 'if command', then left click on the box).
- In the bottom toolbar select pin3 from the dropdown toolbar.

You can now connect up the 'No' route, going back into the 'if pin3 = 1' box.

- Go back to the main toolbar buttons by selecting the back button.

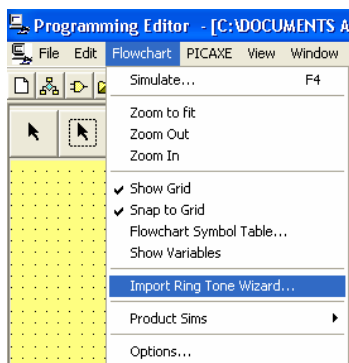


- Select the draw lines button.
- Click on the 'N' on the 'if command' and then click on the connection between the 'Start' and the 'if pin3=1' box as shown:



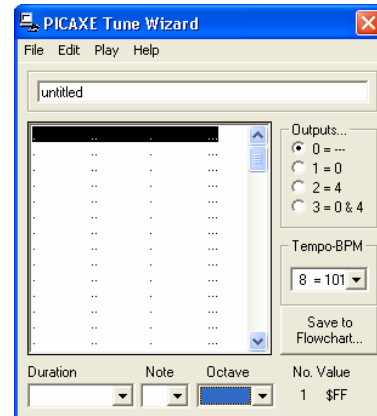
We need the tune to be played once the switch has been pressed.

Before you can add the tune to the flowchart you will need to import the ring tone you would like to use. You can use any mobile phone ring tone that has been saved in the 'Ringing Tones Text Transfer Language (RTTTL)'.



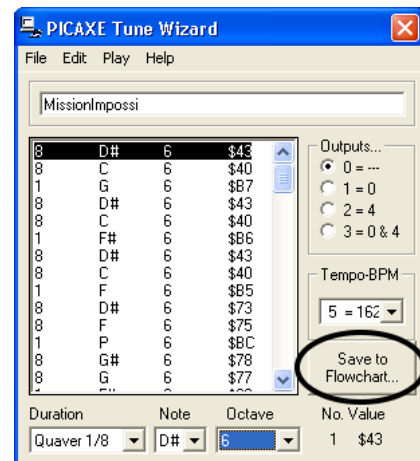
- Select 'Flowchart' on the top menu.
- Then select 'Import Ring Tone Wizard...'

The following tune wizard will be shown:



- Select 'File'
- Select 'Import ringtone...'
- Navigate to the ring tone you want to use.

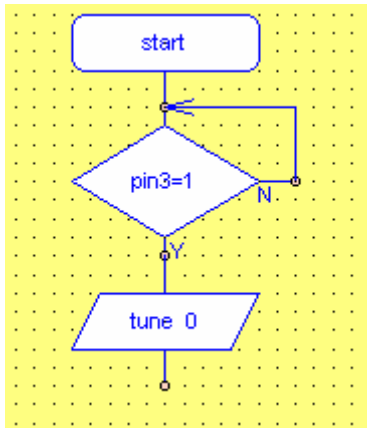
The Tune wizard now displays the details of your ring tone.



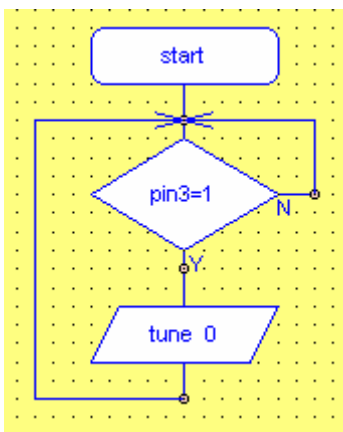
- Finally press the 'Save to Flowchart...' button.

Your tune is now associated with this flowchart and ready to play. You need to add a tune box to the flowchart:

- On the 'Out' flowchart toolbar, select 'Tune'.
- Add a tune after the 'pin3=1' box.
- The options in the bottom toolbar control if any of the outputs flash whilst the tune plays. This will be set to zero and doesn't need changing.

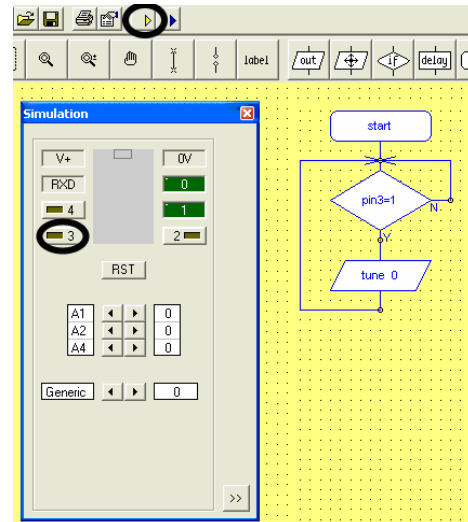


When the tune has finished, you want the software to run again, so connect up a path as shown:



You are now going to simulate the software on the PC, before you program your board.

- Press the yellow play button.
- The simulation box will open and the part of the flowchart that is running will be highlighted in red.



- In the simulation window clicking the button labelled 3 will simulate the switch being pressed, clicking a second time will release the switch.

When you click on input 3 it will be set and the program will continue and the tune will play.

If your software didn't work as it should, double check the flowchart (left).

You are now ready to program the PIC. To do this make sure your board is powered up, it contains a PIXAXE® chip and that the programming cable is plugged into the board.

If you are still simulating, you will need to stop the simulation (click anywhere on the flowchart window).

Press 'run' button (blue arrow). A 'Downloading program' box will appear and all being well a short while later the chip will be successfully programmed and the box will change for a box indicating success.

If there is a problem with the connection or power to the board, a box will pop up to tell you so.

If you would like the music to start playing when a box lid is opened and the switch is released, click on the pin3=1 decision box, then on the bottom toolbar change the 1 to a 0. The box on the flowchart will now read pin3=0. Now reprogram your board.

Thank you for using this guide, which has been produced by Kitronik in collaboration with Revolution Education, developers of the PIC programming editor software.

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