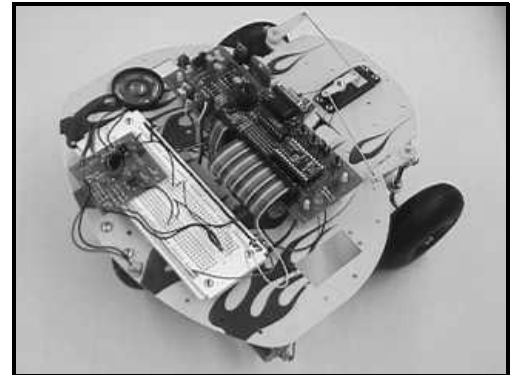


This application note explains how to connect a Radio Shack Digital Voice Recorder/Player to the ARobot. This is a quick and easy expansion that will add a lot of character to your robot.

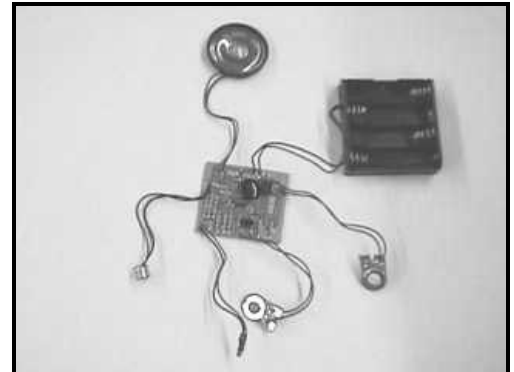


Assumptions

It is assumed that you have mounted a breadboard or proto board to ARobot, that you have made an expansion cable, and that you understand how to use these parts. See the breadboard application note for more information. This project will also require some soldering.

Parts

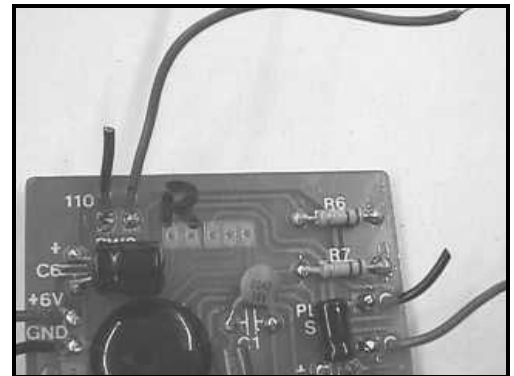
Radio Shack <http://www.radioshack.com> offers a complete digital sound recorder/playback module which will be used for this project. This item comes with everything! It includes a microphone, speaker, buttons, LED, and battery holder already attached to it. All that is needed for a complete unit is batteries which we won't need because power will be taken from the robot.



Digital Voice Recorder Radio Shack # 276-1326

Wiring

There is a little preparation work that needs to be done to the module before it can be attached to the ARobot. The first thing is to cut off the battery holder wires in the middle. Strip and tin the end of these wires. Then cut the buttons off in the same way (label the wires first). Now cut ONE (see the picture) of the button wires completely off close to the circuit board. Do this for each button. Strip and tin each long button wire. Now the module is ready to be wired to the ARobot.



Wire the power (red wire to +5V, black to GND). Now connect the record wire to wire 9 of the expansion cable (P4 of the basic stamp). Then connect the play wire to wire 10 of the expansion cable. Now the hardware is complete.



Software

The software just reads the push buttons and either plays or records your speech. If the record button is pushed it turns on an LED. This code can be downloaded from our web site at <http://www.robotics.com>.

```
'aspeech.bs2      www.robotics.com

'This routine uses a Radio Shack Voice record/play back module
'part #276-1324. One button turns on the green led and records.
'the other button plays back the pre-recorded sound.

speaker con 9           'speaker pin.
redled  con 10          'red led pin.
grnled  con 11          'green led pin.

rec     con 4           'record.
ply     con 5           'play.

setup
  low  speaker          'turn off speaker.
  low  redled           'turn on led.
  high ply             'setup voice module.
  high rec

  gosub honk           'here we go.

main
  if in14=0 then record 'check if button1 is touched.
  if in15=0 then play   'check if button2 is touched.
  goto main            'keep looping.

record
  low  grnled          'signal start recording.
  low  rec             'turn on record.

record1
  if in14=0 then record1 'loop until released.

  high rec             'turn off record.
  high grnled          'turn off led.
  goto main

play
  low  ply             'start playing.
  pause 500
  high ply

play1
  if in15=0 then play1
  goto main

'beep beep honk honk.
honk
  freqout speaker,200,1500
  low speaker
return
```

Modifications

Radio Shack also carries a voice recorder chip. It costs about the same but needs several external components (microphone, speaker, resistors, capacitors, etc). It is quite a bit more complicated to connect. However, the advantages are that it can be address selected. This means that more than one sound can be recorded and played back. You could have several words that the robot says (yes, no, ok, help, ouch, etc). The chip does come with instructions on use.

See our web site at:

<http://www.robotics.com/arobot>

for additional application information.



www.robotics.com