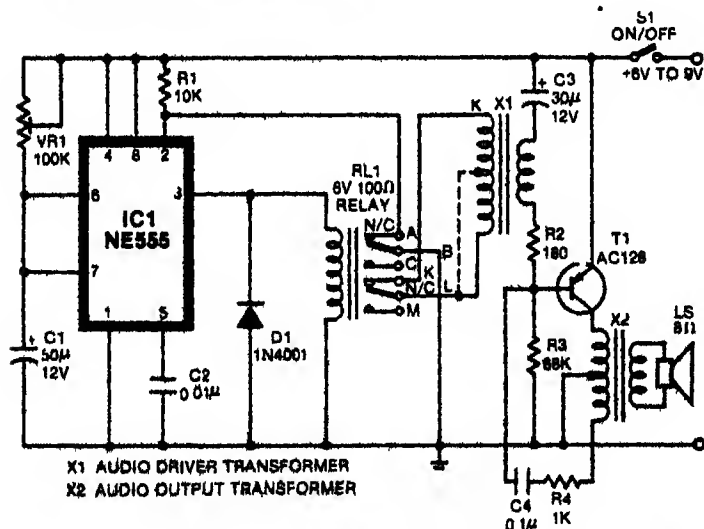


Bird Sound Generator with Timer

Most people have heard parrot bell or bird bell. It produces sound as that of parrot repeatedly. The circuit described here uses a timer along with the 'parrot' circuit to produce a very pleasing sound, as that of parrot or bird. Repetition rate of sound is automatically varied due to the timer circuit. This circuit will cost about Rs 50 only. Power consumption for this circuit is 15 mA at 6 volts.



Pin 2 of IC 555 is connected to relay RL1's terminal A. Terminal B of the relay is connected to ground, and relay terminals K and L are connected to two opposite terminals of the driver transformer X1.

As soon as switch S1 is pressed, relay operates for particular time interval. This opens the opposite two terminals of the driver transformer and changes repetition rate of sound of the parrot bell. After one to three seconds, the relay will be in off state and thus short the two terminals of driver transformer and again change the repetition rate of sound of the parrot bell circuit. Preset VR1 may be adjusted for a variation in the sound.

Repetition rate can be changed as per choice by replacing capacitor C3 with another value. The effect of using center terminal of driver transformer should also be observed.

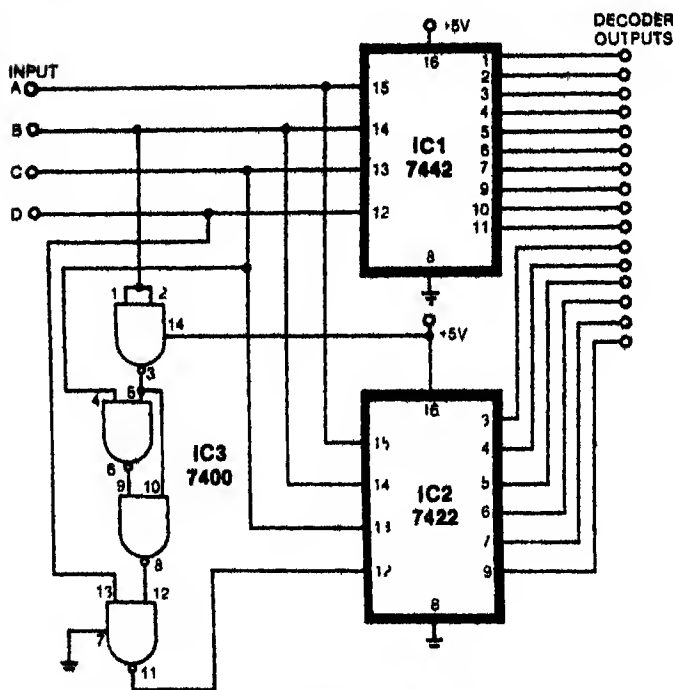
(During evaluation of the circuit in EFY lab, it was observed that changing the value of C3 to 100µF and connecting a 68-ohm resistor in series with the speaker produced a 'real' parrot sound. And repetition rate of the sound changes with slight variation in DC supply voltage.)

PROF. R.V. DHEKALE

Cost-effective 4-line to 16-line

Decoder

Decoders are commonly used ICs in digital circuits. Most popular decoders in the TTL family are 7441, 7442 and



TRUTH TABLE

INPUT	OUTPUT OF IC1										OUTPUT OF IC2									
	D	C	B	A	1	2	3	4	5	6	7	9	10	11	3	4	5	6	7	9
L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	H	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	H	L	L	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H
L	L	H	L	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H
L	L	H	H	L	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H
L	L	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H
L	H	L	L	L	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H
L	H	L	L	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H
L	H	L	H	L	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H
L	H	L	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H
L	H	H	L	L	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H
L	H	H	L	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H
L	H	H	H	L	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H
L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L

74154, IC 7441 and IC 7442 are 4-line to 10-line decoders. IC 74154 is a 4-line to 16-line decoder/multiplexer.

Whenever the design needs 4-line to 16-line decoding, the experimenter is forced to use IC 74154 as there is no other IC available in the market. The cost of IC 74154 is Rs 60 to 70, which is rather high compared to the cost of normally used

ICs. Hence it is well justified to use a low-cost circuit for 4-line to 16-line decoding in the place of IC 74154.

The circuit described here uses three TTL ICs. Though a bit more of wiring effort is involved, the saving in terms of cost is considerable. The circuit should cost about Rs 25 only. (Rs 20 for two numbers of IC 7442 and Rs 5 for IC 7400).

Circuit shows the wiring of two IC 7442s to obtain 4-line to 16-line decoding function. IC1 decodes the 4-bit input in the conventional manner--from 0 to 9. For inputs beyond 9, all the outputs of IC1 remain high. All the outputs of IC2 remain high for inputs from 0 to 9. Inputs beyond 9 are decoded by IC2 giving outputs (LOW) from 10 to 15 on pins 3 to 7 and 9. The drive logic for IC2 is provided by IC3. The truth table for the circuit is also shown.

T.K. LOKABHIRAM

Digital Combination Lock

There are several types of combination locks available but most of them are mechanical. Here is a digital electronic combination lock which is much more reliable than the readily available mechanical combination locks. One can open a mechanical combination lock by trying again and again. But this electronic combination lock gives only one

chance to open it as it includes an alarm and an auto-cut-off system.

One has to close four switches in a definite sequence to open the lock. (In the circuit shown here, the switch closing sequence has been pre-set as S1, S2, S3 and S4 respectively.) In case a wrong switch is closed, i.e., if this sequence is not

TRUTH TABLE

INPUT				OUTPUT
A	B	C	D	
0	0	0	0	1
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
1	0	0	0	1
1	0	0	1	0
1	0	1	0	0
1	0	1	1	0
1	1	0	0	1
1	1	0	1	0
1	1	1	0	1
1	1	1	1	1

