CIRCUIT IDEAS

Precision timer

THIS circuit gives an audible tone lasting half a second at pre-selected times of 2, 4, 8, 16, 32 and 64 seconds. Two gates of the first i.c. are used as a square wave generator. A variable resistor of 500kΩ enables the generator to be set precisely against a known frequency. Where gates are being used as inverters the inputs are connected together. The square wave, via a spare inverter, clocks the binary counter which is advanced one count on the negative going transition of each input pulse. The six outputs of the counter go to the selector switch, the output of which is used to trigger a flip-flop on the positive going edge.

The flip-flop is used to reset the counter to zero and is set itself by the next positive going clocking pulse. Counting from zero then resumes at the next negative going clocking pulse. Two gates of the second i.c. are used as an audio frequency oscillator which drives a crystal earpiece through a spare inverter. The oscillator is normally off and is switched on for the half second that the counter is being reset.

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