NOTES

Small interval timer for observational studies

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One of the more essential tools in field studies is an interval timer which allows the recording of behaviors in temporal sequence. This paper concerns the design and construction of a small interval timer for use in close proximity to the subjects being observed. Its size and physical configuration allow concealment, permitting the observer to keep his eyes on the situation being recorded. The timer provides either a visual or auditory signal, or both, and with proper placement of the timer the signals are inconspicuous to all except the observer. The timer has been tested in several studies in which close-up observations of the facial expressions of smiling and laughter in adult daily interactions were quantified (Lockard, Fahrenbruch, Smith, & Morgan, in press; Lockard, Laurie, & Absher, Note 1). Although this timer is designed for observational studies of humans, it can be used with other species in which the temporal sequence of behaviors is important.

A circuit diagram of the interval timer is shown in Figure 1. It is a classic unijunction transistor (UJT) relaxation oscillator (Cleary, Note 2). The present application of this basic circuit is to generate pulses which activate a low-impedance earphone (8 ohms) and/or a light-emitting diode (L.E.D., Hewlett-Packard 5082-4403). The periodic auditory clicks and/or energized L.E.D. function as an interval timer. The 250K potentiometer sets a pulse repetition rate between .5 and 20 sec. The 9-V battery (No. 222) is replaceable, readily available, and inexpensive. The simplicity of this circuit allows easy construction at a total component cost of no more than \$10.

Figure 1. Interval timer circuit diagram. A unijunction transistor (UJT) relaxation oscillator with an earphone and/or light transducer.

A photograph of the interval timer is shown in Figure 2. Adjustments are accomplished by screwdriver or fingernail to the recessed rheostats (in order to minimize accidental changing of volume or rate) controlling earphone volume and pulse rate. The L.E.D. may be worn at the periphery of the eye, concealed and held in place by sunglasses. The cord of the L.E.D. and of the ear jack can be obscured by hair and clothing. The physical dimensions are 10.5 mm long, 5.5 mm wide and 3.75 mm high, so the timer box can fit into either a pocket or a purse.

Figure 2. Photograph of interval timer. Recessed rheostats controlling earphone volume and light (L.E.D.) pulse rate.

REFERENCE NOTES

1. Lockard, J. S., Laurie, A. M., & Absher, D. F. *Smiling and laughter during telephone conversations*. Manuscript in preparation.
2. Cleary, J. F. (Ed.). *General Electric transistor manual*. Syracuse: General Electric, 1964. Pp. 194-195.

REFERENCE

LOCKARD, J. S., FAHRENBRUCH, C. E., SMITH, J. L., & MORGAN, C. J. Smiling and laughter: Different phyletic origins? *Man*, in press.