BUILD AN

ESP TESTING MACHINE

PE TESTED

Experiment with a young science and provide entertainment too!

BY IRA H. SPECTOR

OVER forty years ago, Dr. J. B. Rhine, of the Duke University Parapsychology Laboratory, began the first thorough scientific research into extrasensory perception (ESP). In those days, testing for ESP consisted of thousands of card-guessing experiments in which subjects would try to pick the exact order of a deck of cards to see how close they could come. Since a certain amount of "hits" were expected by chance, Dr. Rhine and his associates were only interested in those individuals who could consistently achieve scores that were significantly above chance. Those persons provided the experimenters with overwhelming evidence of the existence of ESP.

For today's advanced parapsychological research projects, the trend is away from card guessing. Recent ESP testing machines provide a test, automatically keep score, and can be interfaced with other instruments for determining physiological and psychological correlates of extrasensory perception.

The ESP Testing Machine described here incorporates many of these features. It is a portable, battery-operated device that allows the experimenter to test for all three types of ESP—telepathy, clairvoyance, and precognition,. Additionally, it's a fun game for entertainment purposes.

General Description. The ESP Test Machine consists of four light-emitting diodes (LED's) which serve as ESP "targets." There are four corresponding target-select pushbuttons. An internal random-number generator selects one of the LED's for illumination behind a small partition so that the target is not visible to the subject.

Although the procedure varies according to the type of ESP under investigation, the general objective is for the subject to achieve a "hit" by pressing the pushbutton corresponding to the hidden target. After each

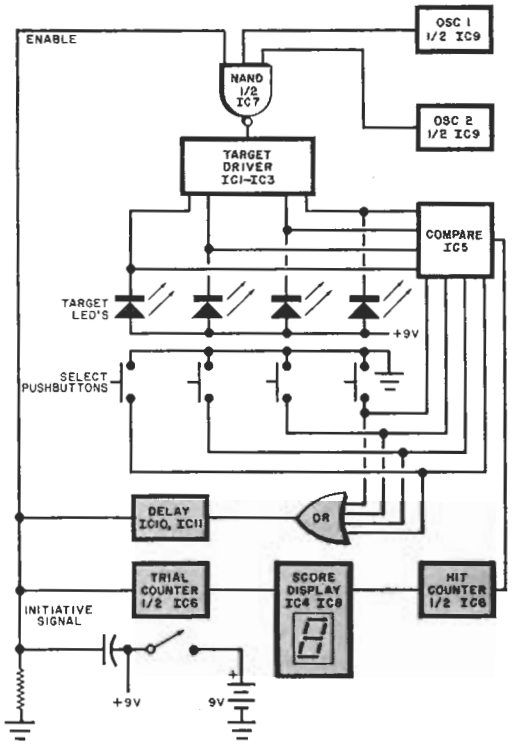


Fig. 1. Logic diagram of the Testing Machine. Two oscillators are gated to turn on one LED at random. When switch for lighted LED is pressed, a hit is shown on display.

trial, the random-number generator automatically selects the next target. When ten trials are completed, the number of hits is automatically displayed by a numeric indicator. A manual-display pushbutton is also provided to allow immediate feedback of the score anytime during the test run.

Since there are four equally probable target choices, the probability of a hit during any trial is 25%. Therefore, in ten runs (100 trials), the chance score is 25 hits. Tests scores which regularly deviate significantly from chance are considered evidence of ESP.

Circuit Operation. The basic logic circuit is shown in Fig. 1. When power is first turned on, an initiating signal generated by an RC circuit turns on a single, randomly selected LED.

When one of the four pushbuttons is depressed, an enable signal is generated. This goes through a delay to a three-input NAND gate formed by half of *IC7*. The other two inputs to the NAND gate come from a pair of non-synchronized pulse-generator oscillators *(IC9)*. When the NAND gate is enabled, it allows two non-synchronized pulse trains to clock the target driver made up of *IC1, IC2, IC3*. This causes the LED's to illuminate in a 1-2-3-4 sequence at a random rate. At this speed of operation, the four LED's will all glow weakly. When the selected pushbutton is released, the enable signal is removed from the NAND gate (after a random delay), and only one of the LED's will remain lit.

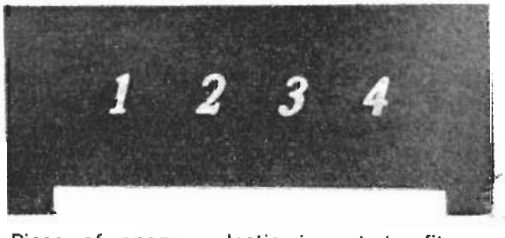
Each time the enable signal is generated, it also clocks the trial counter *(IC6)*. After counting up to 10 trials, this counter generates a stop signal which turns on the seven-segment readout to display the number of "hits." It simultaneously turns off all four LED's. In the case of 10 consecutive hits, the logic produces a capital letter "H" on the seven-segment readout. To start a new test run, the power is turned off and then on again.

If the operated pushbutton corresponds to the illuminated LED, a comparator *(IC5)* generates a signal which is counted by the hit counter to form the display on the readout.

The length of the enable signal is a function of the time that one of the selection pushbuttons is held down. The delay in the circuit depends on the amount of bounce that occurs when the switch is operated. This adds human and mechanical randomizing elements to the target selection.

The actual circuit of the machine is shown in Fig. 2.

Construction. The ESP Testing Machine uses a double-sided pc board. Due to the large size of the foil patterns, they cannot be reproduced here. **However, you can obtain them, free of charge, by writing (enclosing a self-addressed, stamped envelop for return) to Editorial Dept., POPULAR ELECTRONICS, 1 Park Ave., New York, NY 10016.** The layout of components is shown in Fig. 3.



Piece of opaque plastic is cut to fit on top of chassis to form the vision barrier.

In working with the CMOS IC's, be sure that they do not come in contact with anything that can build up a static charge. Keep them in their conducting foam until ready for installation and handle them only by their non-pin edges. Use a small, low-wattage soldering iron with a grounded tip and observe the notch index for proper positioning.

Install the four white (*S2* through *S5*) and one red *(S1)* pushbutton switches on the Display Side of the board, along with the seven-segment readout. Mount the four LED's so that their bases are about ⅛" above the board. Use short lengths of bare wire, soldered on both sides of the board, for the test points.

Mark the cover of the plastic box so that it can be drilled and cut to allow the six switches, *RO1*, and LED's to protrude. The pc board is mounted on the front panel using 3/16" spacers. The power switch *(S6)* is

ESP TESTING PROCEDURES

General Principles. It is desirable to experiment in a quiet, comfortable room with subdued lighting. Take the test slowly, allowing enough time during each trial to develop a "feel" for the correct target. Use the DISPLAY pushbutton for immediate feedback when you think you are performing well.

Try to correlate any psychological factors (mood, approach, etc.) or physiological factors (tiredness, physical comfort, etc.) with test scores to see if patterns emerge. Use the figures in the Performance Chart to evaluate your scores.

Always keep the target partition in place during tests and always press the target select button for at least ½ second to ensure the registering of your trial and to provide extensive randomizing of the targets.

Testing for Telepathy. Mental telepathy is the transferring of information from one individual to another without the use of the five senses. The procedure for conducting a telepathy test is as follows:

1. Place the ESP Testing Machine on a table between the subject (receiver) and the sender. Make sure that the machine is oriented so that the targets are visible only to the sender.
2. When the power is turned on and the initial target is illuminated, the sender concentrates on the *number* on the target partition that corresponds to the target selected by the machine.
3. The subject should then try to get a mental image of the correct number and press the corresponding target select pushbutton. The subject should never look at the sender during the test to avoid "sensory leakage."
4. Repeat this procedure until ten trials are complete and the score is displayed.

Note: You may want to substitute other target material for the numbers on the partition to see how scores are affected. Use letters, colors, pictures—anything that you feel will enhance the visualization process.

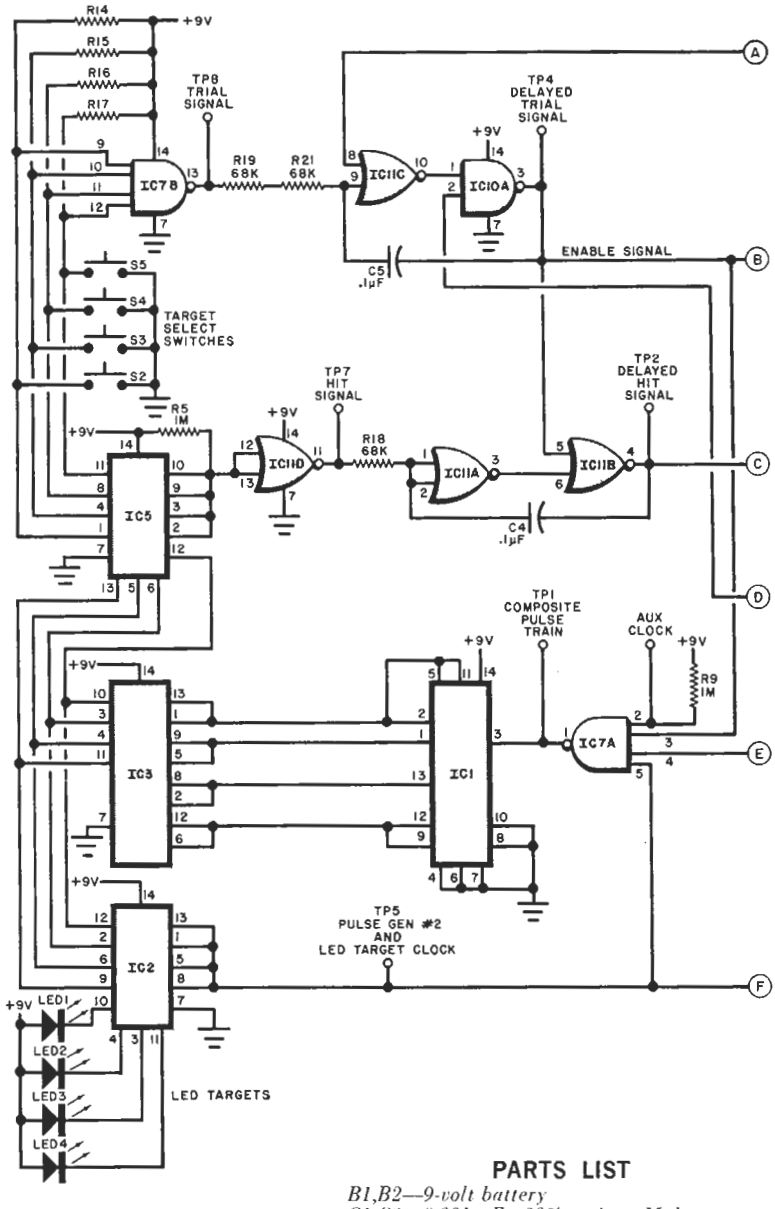
Testing for Clairvoyance. Clairvoyance is the perception of objects without the use of the five senses. The procedure is as follows:

1. Position the ESP Testing Machine so that the targets are not visible to anyone. This precaution avoids the possibility of "telepathic leakage."
2. Turn on the power and try to visualize which target is illuminated. Then press the appropriate pushbutton.
3. Continue this procedure until the run is complete and the score is displayed.

Testing for Precognition. Precognition is the prediction of future events that cannot be inferred from present knowledge. The procedure is:

1. Write down a list of ten numbers from among the target integers 1, 2, 3, and 4. Use any sequence which you "feel" will be selected by the machine when you actually perform the test.
2. Turn on the power and press the target select pushbuttons in accordance with the chosen sequence. When the last number is entered, your score will automatically be displayed.

Other Tests. The use of the ESP Testing Machine with other electronic equipment will permit a more detailed investigation of the nature of ESP. For example, if ham radio equipment is available, telepathy-over-distance tests can be performed either to verify or challenge previous results indicating that telepathy performance is unaffected by distance. If high scores are achieved, it would be an indication that the telepathy signal was not appreciably affected by distance.



PARTS LIST

B1,B2—9-volt battery
C1,C2—0.001-μF, 20% mica, Mylar, or ceramic capacitor
C3-C5—0.1-μF, 20% Mylar or ceramic capacitor
IC1—4013 CMOS dual-D flip-flop
IC2,IC8-IC10—4011 CMOS quad 2-input NAND
IC3,IC11—4001 CMOS quad 2-input NOR
IC4—4055 CMOS 7-segment decoder/driver
IC5—4016 CMOS quad bilateral switch
IC6—MC14520CP CMOS dual binary up-counter
IC7—4012 CMOS dual 4-input NAND
LED1-LED4—Light-emitting diode (Monsanto MV-5024 or similar)

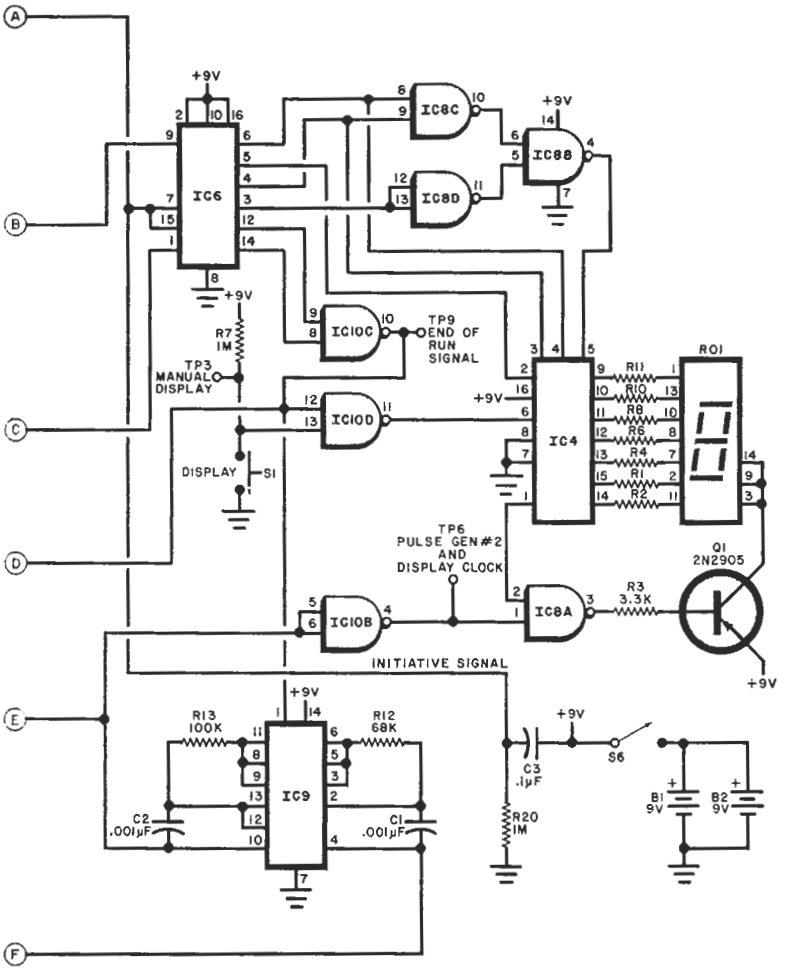
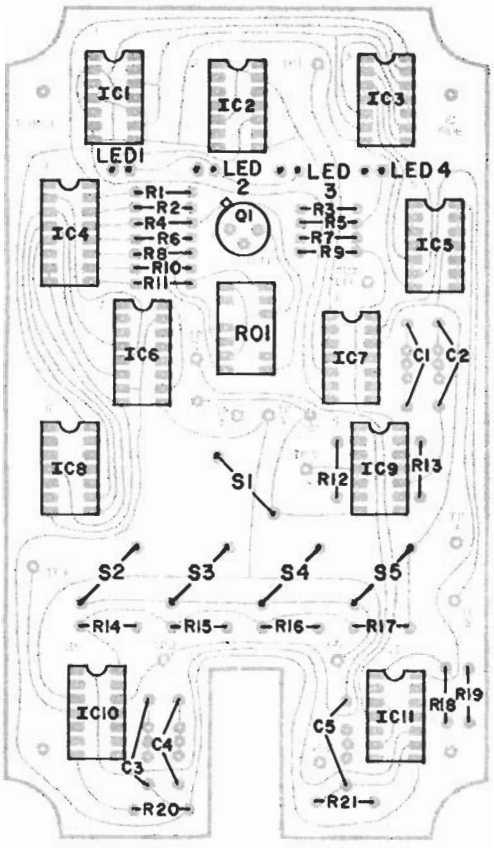


Fig. 2. The complete schematic for the ESP Testing Machine is shown above and on the opposite page. The circuit is powered by two 9-volt batteries. CMOS logic units are used to reduce drain on the batteries.

Q1—2N2905 transistor
R1,R2,R4,R6,R8,R10,R11—560-ohm, ¼-watt, 10% resistor
R3—3300-ohm, ¼-watt, 10% resistor
R5,R7,R9,R14-R17,R20—1-megohm, ¼-watt, 10% resistor
R12,R18,R19,R21—68,000-ohm, ¼-watt, 10% resistor
R13—100,000-ohm, ¼-watt, 10% resistor
RO1—7-segment LED readout (Litronix DL-707 or similar)
S1—Spst momentary pushbutton switch (red) (Oak 415-399592-LP or similar)
S2-S5—Spst momentary pushbutton switch (white) (Oak 415-399596-LP or similar)
S6—Spst alternate-action rocker switch (Chicago 26-220-100 or similar)
Misc.—Case (H. H. Smith 2255), cover (H. H. Smith 2256), plastic for target partition, battery holders (2), battery connectors (2), mounting hardware, etc.

Note 1—The following are available from Paratronics, 150 Tait Ave., Los Gatos, CA 95030: etched and drilled pc board (ESP-1PC) at $7.00; finished and labelled panel, case, and target partition (ESP-1PP) at $5.50; complete kit of parts (less batteries) (ESP-1KN) at $69.00; assembled and tested unit (ESP-1AT) at $86.00. All items postpaid. California residents please add 6% sales tax.

Note 2—Foil patterns for the double-sided pc board can be obtained free of charge by writing (enclosing a self-addressed, stamped envelope) to Editorial Department, POPULAR ELECTRONICS, 1 Park Ave., New York, NY 10016.



NOTE: LED1–LED4, RO1, & S1–S5 ON SIDE OPPOSITE IC'S

Fig. 3. Component layout for the pc board.

mounted directly to the front panel and fits into the cutout on the board.

The chassis cover should also have two slots, one on each side, between the LED's and the readout. A piece of opaque plastic should be cut so that it will fit into the slots on each side. This forms a vision barrier so that the person operating the pushbuttons cannot see the LED's. Mark the barrier with the numbers 1, 2, 3, and 4 on each side, keeping in mind that on one side the numbers must read from left to right, and right to left on the other.

PERFORMANCE CHART

No. of Runs*	Chance Score	Good Score (Odds 20:1)	Excellent Score (Odds 100:1)
10	25	34	36
20	50	62	66
30	75	90	94

*10 trials in each run.

Complete the wiring in accordance with Fig. 2.

Checkout. Turn on the power and observe that only one of the four LED targets is illuminated. Press the DISPLAY button and note that the numeral "0" appears on the readout. Then press the target select pushbutton opposite the illuminated LED and notice an immediate mixing of the targets. Upon release of the pushbutton, one of the four LED's will be lighted for the next target. Press the DISPLAY button again and note that the numeral "1" appears on the readout. Continue this procedure until numerals "1" through "9" have been checked out. On the tenth hit, the letter "H" should automatically appear and further trials should be inhibited.

If trouble occurs, first be sure that the batteries are fresh. Further trouble-shooting will be aided by the use of the test points labeled on the pc board and shown in Fig. 2.

One Final Note. In the event that some readers view the subject of ESP incredulously, consider the following. The prestigious IEEE (Institute of Electrical and Electronics Engineers) at its recent annual convention, held a seminar at which researchers presented professional papers outlining their work in ESP and related subjects. The session was attended by several hundred enthusiastic electronics engineers. ◈

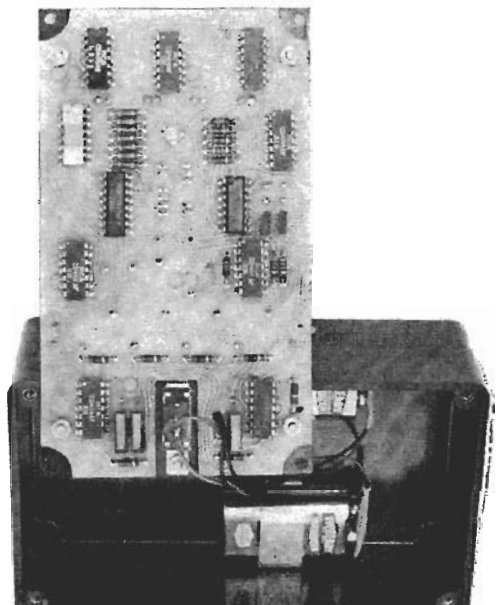


Photo shows pc board and the enclosure.