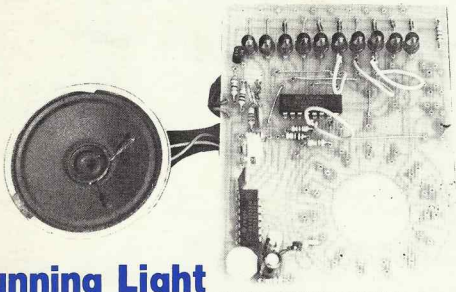


# TALKING ELECTRONICS®

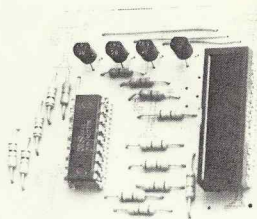
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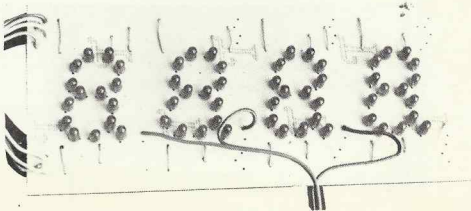
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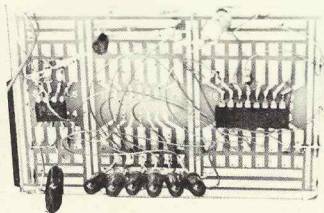
**Running Light**



**Counter Module**



**7-Segment Display**



**LED Dice**

Registered for posting as a publication - Category B

**FREE!**  
**2 TRANSISTORS!**  
See P.27 for details

# TALKING ELECTRONICS

Vol.1 No.2

## *Editorial...*

We derive a great deal of pleasure bringing out TALKING ELECTRONICS. The initial response has been very encouraging, so much so, our initial intention of a 32 page issue has exploded to 48 pages. From the letters it seems we have fulfilled a need in the experimenting field. We obviously have not satisfied it fully but at least have made a large dent. Many readers have requested we cover their pet interests such as computers, amplifiers, remote control, model railroad and CB radio.

For the moment we intend to concentrate on simple DIGITAL projects and provide a firm background to understanding this sector. We will also include an occasional article capable of fulfilling a dual role. Projects such as pocket transmitters, 4-amp power supplies, 20-watt stereo amplifiers for \$5 and electronic traffic lights are in the pipe-line.

You can see the leaning has been towards instructional material with a back-up of questions to consolidate learning. This is our aim. We intend to lift the hobbyist who is new to electronics and gather in the more advanced with a series of graded articles. We can then extend our efforts to additional fields.

A key factor to positive learning is the tests and quizzes in each issue. These highlight the saying "You may know, but do you know you know?"

*Colin Mitchell.*

## **Publisher**

TALKING ELECTRONICS MAGAZINE is designed by Colin Mitchell with a great deal of help from Craig Jones in the technical drawing/designing department and Steven in the art department. Designed and Published at 35 Rosewarne Ave., Cheltenham, 3192. Suitable articles should be sent to this address where you will receive full assistance with final presentation. All material is copyright however up to 30 photocopies for clubs and schools is allowed. Bulk purchase may be cheaper than photocopying.

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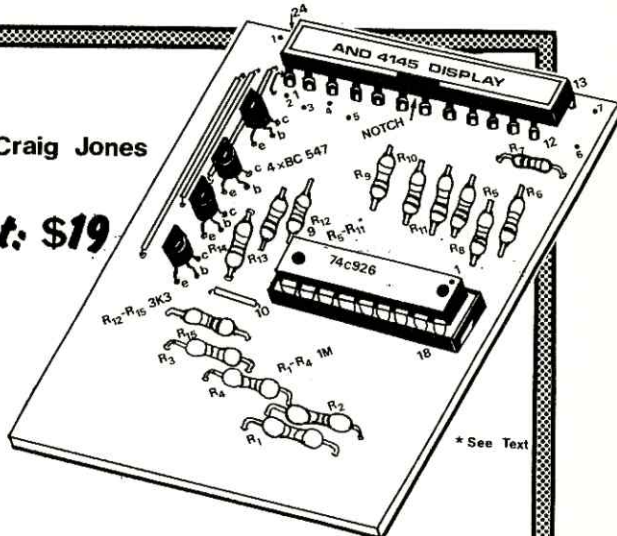
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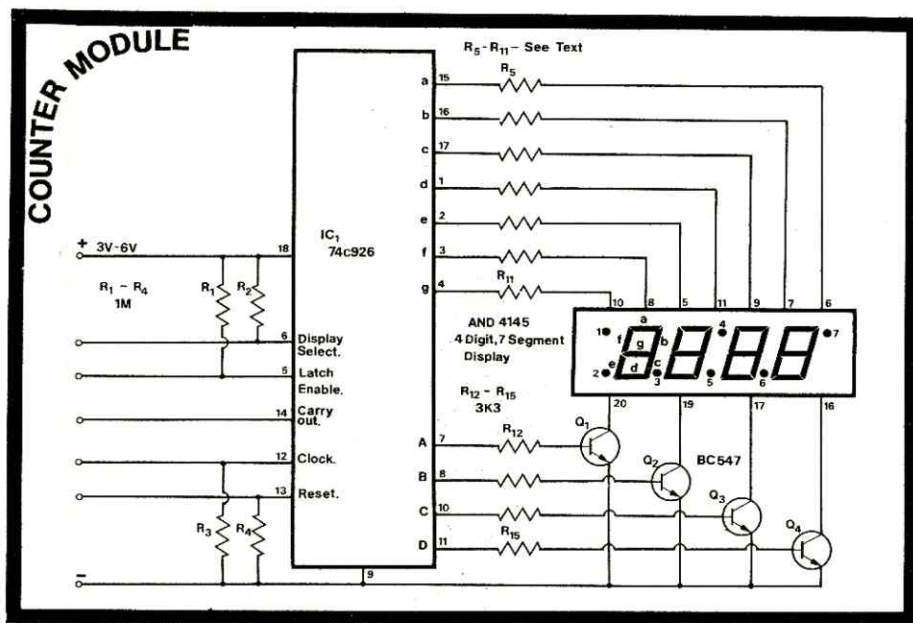
# COUNTER MODULE

— Craig Jones

**Project cost: \$19**



A counter is a very handy piece of equipment. It can be used as test equipment, for display, or for experimentation. Our versatile counter module is especially useful. Many variations and adaptations can be engineered around it, as it is a basic building block. It can be used to count from one cycle per hour to nearly 3MHz. To cater for frequencies higher than 3MHz, additional dividing networks can be included at the front end. This would extend the frequency 100 times or more.



Our project will accept 6 different sensors; light, sound, magnetic, unit, oscillator, and infra-red.

Actually the counter module is quite an easy project. Most of the complexity is contained within the two chips and only a few outside components such as resistors need be added. These resistors interface (connect between) the counting chip and the display. They provide current limiting for the display segments and driver transistors. The four resistors at the input of the IC provide pull-up and pull-down. This sets the condition HIGH or LOW on the inputs as many have a dual role.

At first glance this project may seem expensive compared to a pocket calculator. Some calculators have unit-count facilities incorporated into the plus key and this can be extended externally to an oscillator or reed switch sensor. But a

Calculator project doesn't give any constructional experience or enable you to add your own read-out diagram. Nor does it allow you to add your own read-out.

Any of the six sensors can be fed into the 74c926. These will be the basis of the second part of this project. Consider this project as a paying proposition. You have been requested by an engineering firm to design a simple parts counter to tally daily production. Of course it is always possible to bulk-weigh components on a set of ratio-scales, but the management has stipulated an optical counter situated near the operator. You will be required to build a working proto-type for a four week trial-run. How do you think you will fair? The only catch is, you will have to wait for the next issue for the optical sensor. Any manufacturing firm producing a number of similar items such as plastic parts, packaging of