fischertechnik

NEWSLETTER

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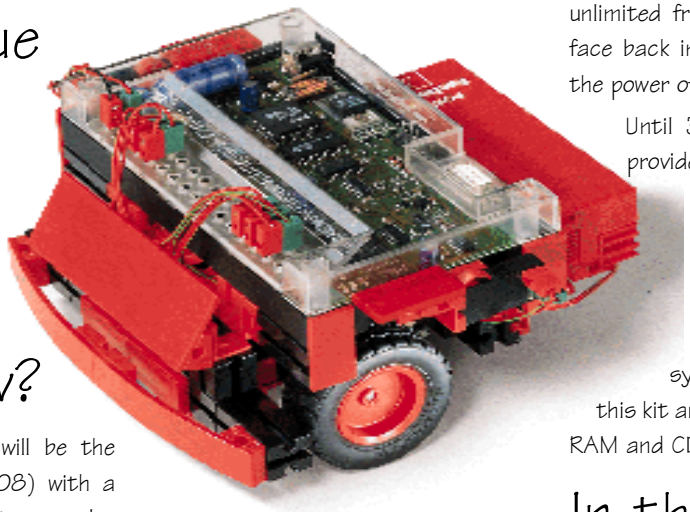

What's New?

Coming out in 1998 will be the Industry Robots kit (30408) with a number of three axis robot arms. Included in the kit will be four motors and eight switches. Full details are not available, however it is expected that the new 'intelligent' interface (30402) will be used with this kit.

Also due for release in 1998 is the IR Control Set (30344), which will provide remote infrared control of models. This set constitutes of two units. The transmitter - much like that of your TV remote control - and a small receiver unit that connects to the interface (30520 or 30402). This will allow remote control of the mobile robots or Industry Robots.

Mobile Robots

...have been unleashed! Yes, the first small shipment of Mobile Robot Kits (30400) has arrived and we've had a chance to evaluate it. This kit provides eight projects (not 2 or 3 as originally reported). The projects are; sliding door, pulse counter, stamping machine and mobile robots with five variations. Besides the base model MR1 (shown above), the kit builds MR2 with obstacle bumper, MR3 with table edge detection, MR4 which follows a light source and MR5 follows a path drawn on the floor.

This kit contains 300 parts including; two M-Motors, six micro-switches, two photo-transistors, the new interface unit and six AA-cell power pack. Although the batteries are not included, we provide a power supply so you can get started immediately. Our experience has shown that alkaline batteries are best due to their higher voltage and greater capacity - they can also be re-charged up to ten times using a special 'magic' charger from Jaycar.

The new interface unit (30402) works in two modes. When power is first applied to the interface, the unit works in 'passive' mode and allows the computer, via the serial port, to directly control the outputs and read the inputs. In this mode, the software (LLWIN) displays the status of all inputs and outputs and, in its flowchart style language, highlights the currently active function blocks. Once you have tested the program in 'passive' mode it can then be 'downloaded' to the interface - this puts the interface in 'active' mode and it may now be disconnected from the computer and operated 'independently'. This gives projects, such as the mobile robots, unlimited freedom. To put the interface back into 'passive' mode switch the power off then on.

Until 30th June 1998, we will provide free-of-charge a multi-media CD-ROM called 'Robotic Intelligence' with all orders for the Mobile Robots Kit (30400). Please note, the minimum system requirements for this kit are; 486/66 DX2 with 8MB RAM and CD-ROM drive.

In the Net!

Yes, Procon Technology can now be found on the internet at:

www.procontechnology.com.au

At this site we hope to provide images of the latest kits and free software updates. Newsletters, such as this, will also be posted.

New Software

The new 32 bit driver for Windows 95 is now available. Conversion of 16 bit programs written under version 3 or 4 of VisualBASIC (VB) was very simple. Programs may now be written in VB version 5! A total of 21 program examples in VB are given for the Profi and Turtle Kits. A few example programs are provided in Delphi version 3. Other languages may be supported on request.

The fischertechnik kits provide a unique and exciting way to learn new programming languages. The fischertechnik programs are quite simple - compared to those provided with the software packages - and the models provide unique feedback when program changes are made. Procon Technology can supply educational

versions of VB or Delphi so that everything can be purchased from the one supplier. If you've programmed in QBASIC then upgrading to VB is easy, likewise if you've programmed in TurboPascal then upgrading to Delphi becomes easy!

Just remember, you don't need to be a programmer to use the fischertechnik computer controlled kits as programs that run immediately are always provided on diskette.

The following is an example of programming in VB. This small program could be used to lift the forks on the Profi turtle. Note, how the procedure 'DoEvents' is always inserted within a program loop to allow other events to be processed.

```
Do
        Motor M3, MCW
        DoEvents
Loop Until SwitchIn(E3)
Motor M3, MOFF
```

The next program is written in Delphi, it performs the same function as the VB program above. Note, the use of 'Application.ProcessMessages' in place of 'DoEvents'.

```
Repeat
        Motor(M3, MCW);
        Application.ProcessMessages;
Until SwitchIn(E3);
Motor(M3, MOFF);
```

Don't forget the DLL driver file can be used with most languages!

Hints & Tips

In this issue we will provide some general tips on constructing a fischertechnik model following the instructions in the manual.

Construction Tips:

1. Prepare your work area well in advance of starting any construction or examination of the kit. Have a large flat and solid area available - if it's a good table always protect it with a piece of cardboard or other suitable material. If your kit contains a plastic box (with construction base-plate) then check the bottom of it for plastic needles that may scratch any table surface and carefully cut them off with a knife. Attach any adhesive pads provided to protect your kit and any surface it is placed on.

2. Familiarize yourself with the various components. Sort the components in the kit into suitable containers according to size and colour. Use the parts list in the manual to assist you in this and pay particular attention to the difference between the single stud 15mm block and the double stud 15mm block and the difference between the 30mm block with and without hole - do not mix these up when constructing the model.

3. Always read and understand the 'Assembly aids' at the front of the manual. You should assemble the plugs and cables using a pair of scissors and screwdriver (and metric rule if needed). You should also take note of the illustrations on assembling the parts shown and read any instructions or warnings.

4. If it's your first time using fischertechnik then play around assembling the various parts and note how some parts are designed to go together while others are not! Start with the first project in the manual - this is normally the easiest - and follow the steps in sequence. This is important, because if you skip ahead you may find that you've missed something and often numerous steps must be disassembled in order to fix it.

5. Always gather the components needed for each step together before assembling them. If you think that a component is missing - look carefully - often it's there, it's just hard to find!

6. Although components should not be forced during assembly, firm pressure may be required with some items. Be careful when tightening items on shafts (wheels for example) attached to gearboxes - always disengage the gearbox from the motor first!

7. When finished assembling motorized parts always disengage the motor from the gearbox and check that the assembly is working correctly.

Electrical wiring tips:

1. Carefully note the position of each electrical device on the model and the required length of cable for the device. Insert each cable with it's green and red plugs exactly as per the connection diagram. Note, most cables are connected to the normally-open side of the switch. Also note the connection to each motor, the red and green plugs are inserted as shown when the grooved side of the motor is facing you.

2. Don't forget to connect the power supply to the interface unit and switch it on! The interface unit uses CMOS components - that require very little power. It can sometimes appear that the interface is working because the inputs seem to respond. Always double check that the power supply is plugged in and powered-up when the interface inputs appear erratic in operation.

3. Before running the model's program, run the diagnostic program and check that all inputs and outputs work. Most errors are due to incorrectly wired switches, or motors with the wrong polarity.

4. When the model's program is first started, all motors normally return to their home position. Should any of the motors appear to go the wrong way - reverse their connections!

More?

Why not write to me, Peter King, and tell me what you'd like to see in this newsletter. If you'd like a full colour catalogue and past issues of the newsletter send 4 x 45c stamps to cover costs to:

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