



HOT PROPERTY

Cheetah Marketing is a company with a good track record in producing add-ons for the Sinclair Spectrum — the Sweet Talker synthesiser is the most successful to date. The RAT, a remote-controlled joypad that uses infrared waves, is the company's latest achievement. We look at this addition to the home computer menagerie...

Serious arcade games players tend to be very concerned about anything that significantly affects the speed and quality of their play — especially if it has a noticeable impact on the final score. For this reason, the way in which a game is controlled is a matter of great importance. With games controlled from the keyboard, the major concerns are the choice of control keys and the ease with which these can be used. Consequently, software writers must pay particular attention to this sort of detail. With external controllers, like joysticks, the design of the hardware tends to be the crucial factor.

The flexibility of a joystick — its freedom of movement, how quickly it reacts to your touch, the speed at which the game responds — is its most significant design consideration. But the designer is often hampered by the limitations imposed by the nature of a joystick itself — the length of the connecting lead, the size, shape and position of the controller, and the position of the fire button(s). The latter detail, for example, often favours right-handed players. Although joystick manufacturers have tried to develop designs that overcome some of these drawbacks, none have been as successful as Cheetah Marketing's infrared remote joypad for the Sinclair Spectrum.

Cheetah has called its joypad the RAT. The name is said to be an abbreviation for 'remote action transmitter', but seems to be a play on the word Mouse, which is applied to the hand-held controllers used with Apple's Macintosh and other machines. The RAT looks like a slightly elongated phaser weapon from television's *Star Trek* series. It is long, flat and grey, with a blue circular control pad, the Cheetah logo and a bright orange fire button. There are two infrared transmitters extending from the front of the unit. When you first hold the RAT and press the fire button you almost expect flashes of blue flame to leap from it.

The system also includes its own interface, which plugs into the edge connector at the back of the Spectrum. This box has an expansion port of its own for further add-ons. There is a single



Radiating Light

Infrared radiation — having a longer wavelength than visible light, but shorter than radio waves — is produced in the transmitter by Infrared Emitting Diodes (IEDs) when an electrical current in a tiny chip of gallium arsenide excites the molecules causing photons to be released. In the receiver, conversely, an electrical current flows in the IED when infrared light falls upon the gallium arsenide. When the control buttons on the RAT are pressed, therefore, the two transmitter IEDs emit coded pulses of infrared in a broad beam, triggering the receiver directly or after reflection in the room.

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