



the price range, are the Neptune 1 and Neptune 2, costing £1,250 and £1,725 in kit form. These arms will lift up to 2.5kg and are hydraulically powered






— although they use water and not the normal hydraulic fluid used in most robots of this type. These arms can also be controlled by the BBC



Long Arm Of Learning

The two most significant areas of microelectronic research are chip design and robotics. Few hobbyists can experiment with new microchips in their home workshops, but robots are becoming more and more accessible. The primary purpose of the robot arms in the price ranges we have examined is to increase one's understanding of how robots work. The best way to increase our knowledge of robots is to examine working systems and try to improve them. The arms shown here, the Micro Grasp from Powertran Cybernetics and the Armdroid from Colne Robotics, are programmable through microcomputers and have five degrees of freedom. They can be purchased fully assembled or in kit form. The Micro Grasp costs £339.25 as a kit or £458.85 assembled. The Armdroid is £511.75 as a kit, or £569.25 assembled

CHRIS STEVENS

					
NAME	NEPTUNE 1	NEPTUNE 2	MENTOR	GENESIS P101	HERO
TYPE	Arm	Arm	Arm	Arm	Floor robot
PRIMARY PURPOSE	Educational	Educational	Educational	Educational	Educational/experimental
SENSORS	Potentiometer records position, gripper can sense how far it is closed	Potentiometer records position, gripper can sense how far it is closed	Potentiometer records position, gripper can sense how far it is closed	Positional feedback	Ultrasonic, allowing it to detect motion. Sensors detect 256 levels of light and sound. Tactile sensors on the gripper
DEGREES OF FREEDOM	6: waist, shoulder, elbow and wrist elevation, wrist roll, and gripper	7: waist, shoulder, elbow, wrist elevation, wrist roll, wrist yaw and gripper	6: waist, shoulder, elbow and wrist elevation, wrist roll and gripper	6: waist, shoulder, elbow and wrist elevation, wrist roll and gripper	4: shoulder, elbow, wrist and gripper
PRICE	£1,250	£1,725	£345	£1,750	£1,995
POWER	Hydraulic: water pump driven from mains	Hydraulic: water pump driven from mains	Mains	Hydraulic: water pump driven from mains	Rechargeable batteries
CONNECTS TO	BBC Micro, Spectrum, Vic-20	BBC Micro, Spectrum, Vic-20	BBC Micro, Spectrum, Vic-20	Programmed through a controller box; standard RS232 interface BBC Micro, Spectrum, Vic-20	Using a cross assembler, the Hero can be attached to any micro with a serial port
AVAILABLE FROM	Cybernetic Applications Ltd., West Portway Industrial Estate, Andover, Hampshire SP10 3NN	Cybernetic Applications Ltd.	Cybernetic Applications Ltd.	Powertran Cybernetics, West Portway Industrial Estate, Andover, Hampshire SP10 3NN	Zenith Data Systems, Bristol Road, Gloucester, GL2 6EE