Microcontroller or hard-wired?

Core BUILD THE BASICS

C1 **State** what an input pin does. **[1]**

C2 **State** what an output pin does. **[1]**

C3 **State** where an output lamp is connected. **[1]**

C4 **State** where a push switch connects. **[1]**

C5 **State** what decides whether a pin is an input or an output. **[1]**

C6 **State** where a buzzer on pin 7 connects. **[1]**

C7 **State** one disadvantage of a microcontroller compared with a hard-wired circuit. **[1]**

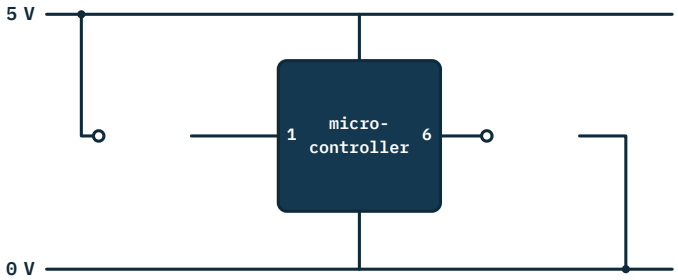
Stretch GO FURTHER

S1 **Describe** two differences between a microcontroller system and a hard-wired system. **[2]**

S2 **Explain** why the program, not the wiring, decides which pins are inputs. **[1]**

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S3 **Complete** the circuit: start switch on pin 1, lamp on pin 6. **[2]**



S4 A task gives pins 0, 5, 6, 7. **Describe** what you should do in the simulator. **[1]**

Exam Ready QUALIFICATIONS SCOTLAND STYLE

E1 A level crossing uses a microcontroller. A train sensor is on pin 0, and warning lamps on pins 4 and 5. **Describe** how the sensor and lamps are connected. **[2]**

E2 **Describe** one advantage of a microcontroller for the level crossing. **[1]**

E3 A pedestrian crossing uses a button (pin 0), a red lamp (pin 5) and a green lamp (pin 6). **Describe** how each is connected. **[3]**

E4 **Explain** one advantage of a microcontroller for the crossing compared with a hard-wired timer circuit. **[2]**

Total: 21 marks. Use the Data Booklet. Show your working and give units.