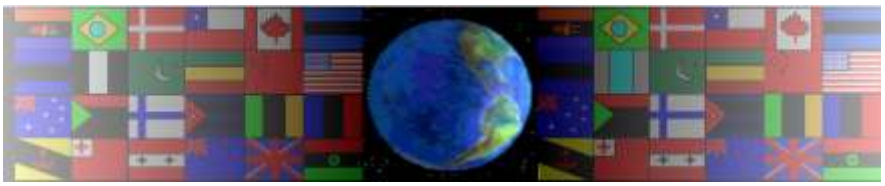
LIGHT / DARK SENSOR

On behalf of The World Association of Technology Teachers

W.A.T.T.



World Association of Technology Teachers

This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

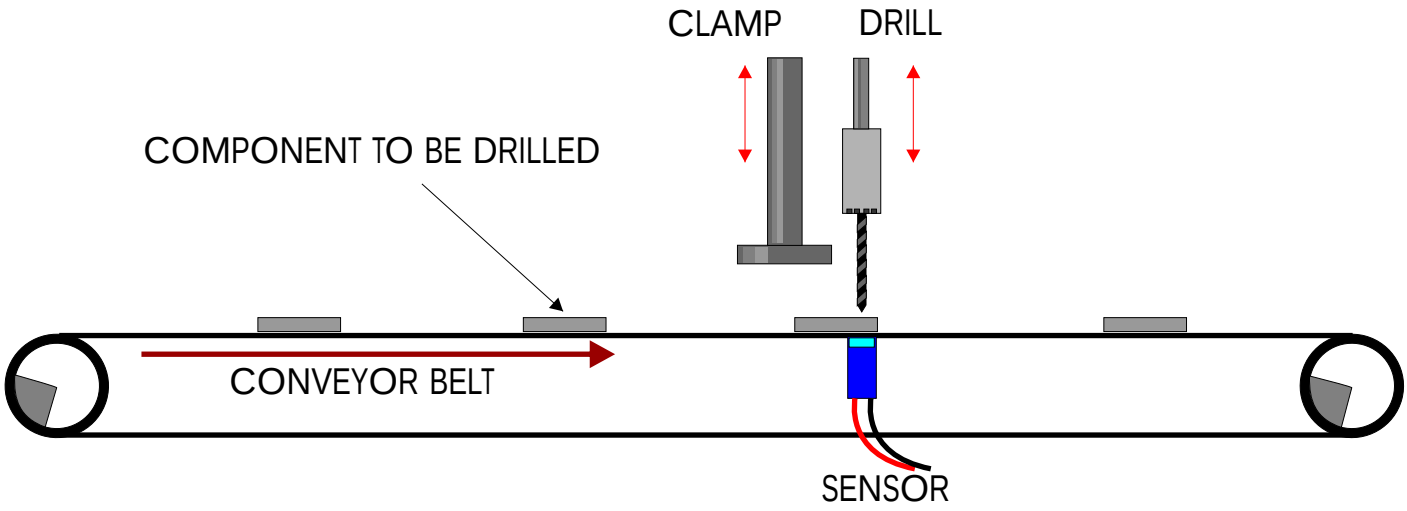
SYSTEMS AND CONTROL EXAMINATION QUESTIONS

1. Many production lines are automated. What is an automated production line?

_____

_____

2. An automated production line is shown below. Parts / components move along the production line where they are sensed, clamped down, drilled and then released, moving down the production line again.



The whole process is controlled by a PIC Microcontroller. The conveyor belts rotates continually until the sensor detects a component.

Write the sequence of instructions for the entire process on the following instruction sheet. Basic instructions you are to use are described below.

CONVEYOR BELT	ON
	OFF
SENSOR/DETECTOR	YES
	NO
CLAMP	UP
	DOWN
DRILL ATTACHMENT	UP
	DOWN
GOTO LINE NUMBER _____	

You are to write your answer as a set of instructions and as a flowchart.

1. CONVEYOR BELT ON
2.
3.
4.
5.
6.
7.
8.
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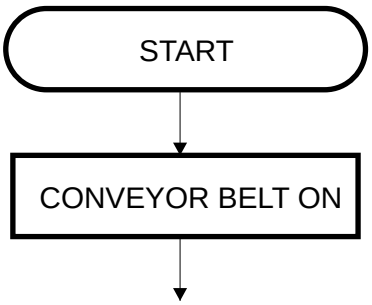
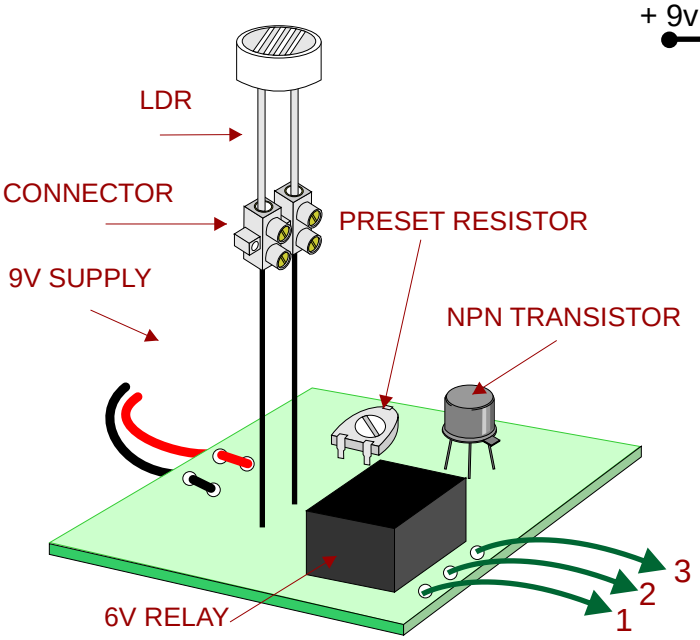
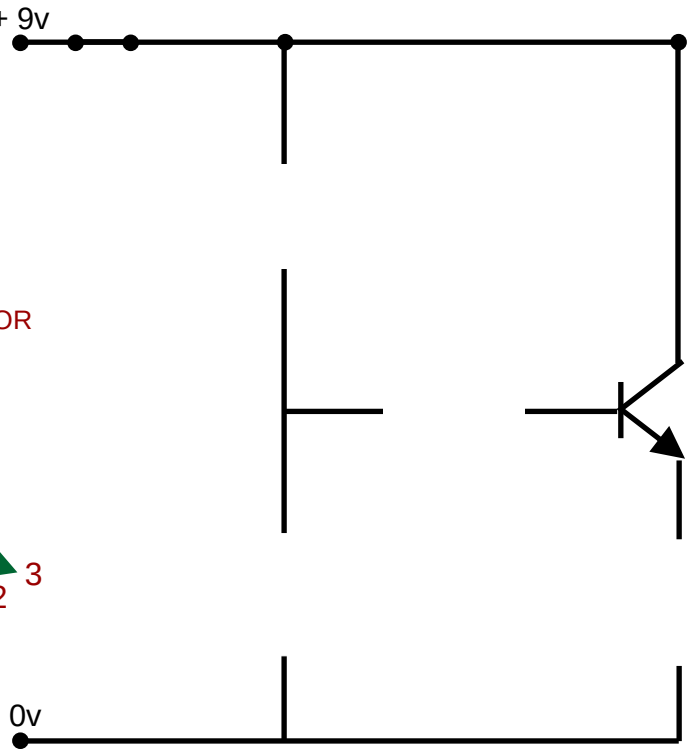


3. The sensor being used on the production line is shown below. Complete the circuit diagram of the same circuit. Label the components.





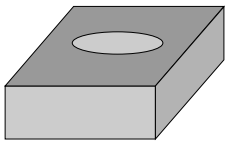
LIGHT SENSOR CIRCUIT

4. Each component being drilled is identical. Each has a central hole and is rectangular in shape. It has been decided that each component must be checked for the presence of the hole after drilling. This is part of quality control.

4a. What is the meaning of quality control?

4b. Using sketches and notes explain how the circuit shown at the top of the page could be used to check for the presence of the hole in each component.

COMPONENT



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