

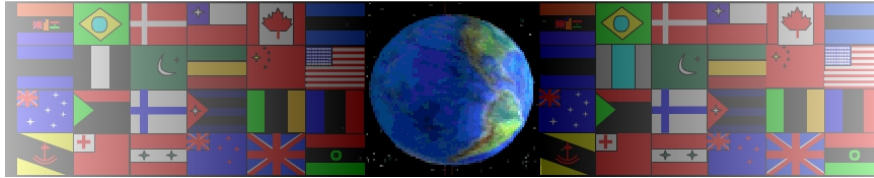
LIGHT/DARK SENSOR, DARLINGTON PAIR, DIODE AND RELAY

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On behalf of The World Association of Technology Teachers

W.A.T.T.



World Association of Technology Teachers

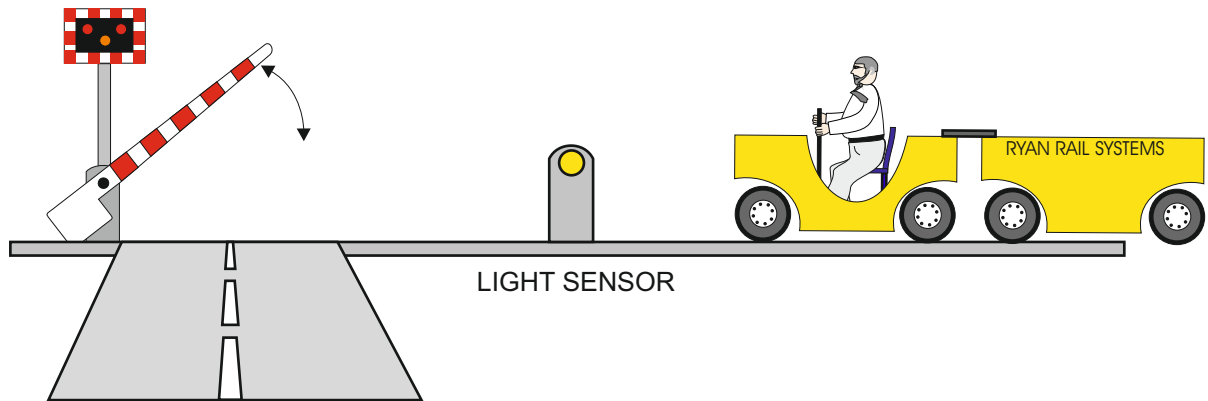
This exercise can be printed and used by teachers and students. It is recommended that you view the website (www.technologystudent.com) before attempting the design sheet .

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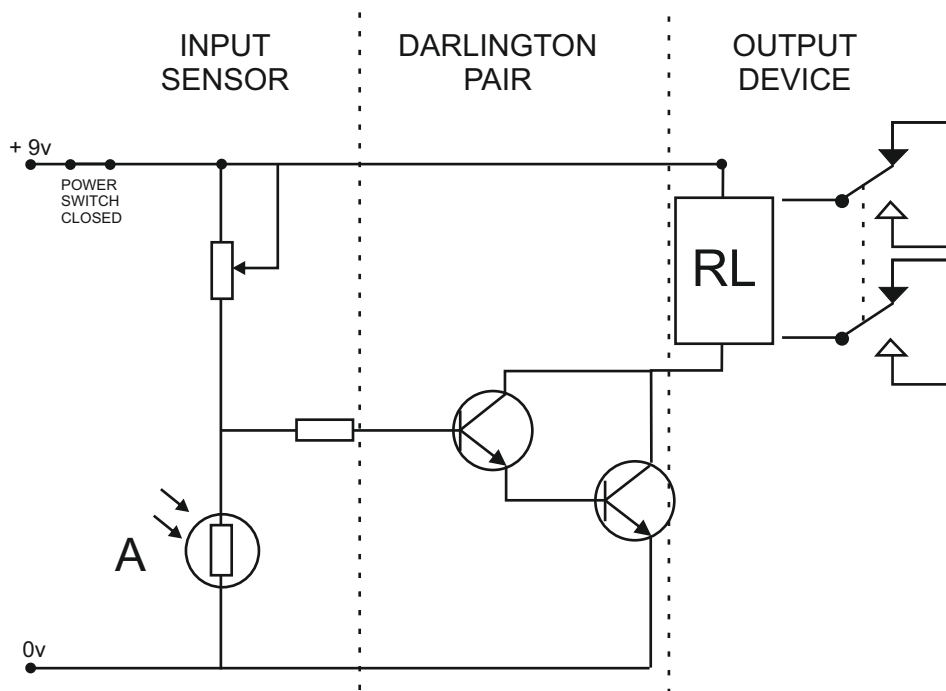
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As part of a GCSE project a student has designed a barrier system for a roller coaster platform. The specification drawn up by the student says - As a carriage approaches the platform it breaks a light beam and the barrier is lowered, stopping excited and unruly riders getting too close to the stopping carriages. When the full carriage moves away, the barrier should lift allowing the next set of riders to access the platform, ready for the next carriage.



The student's prototype control circuit can be seen below.



Name component 'A'.

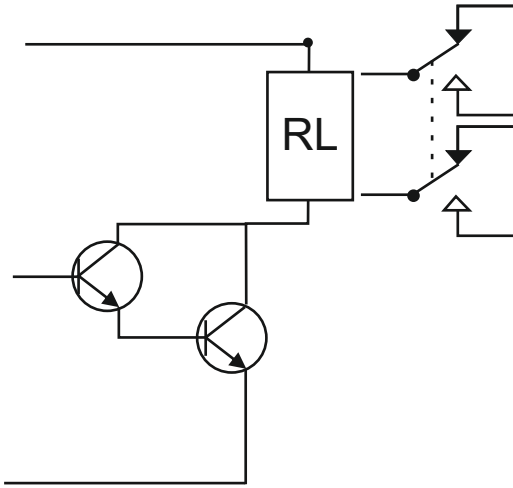
Give one reason why the circuit shown above will not meet the specification.

Write a modification that would solve the problem with the specification

Why is a darlington pair positioned between the sensor and the relay?

The darlington pair circuit has been tested but it regularly fails. Draw a modification on the circuit diagram below that will ensure that the circuit works without problems.

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Explain how your modification works.
