

1999 West Virginia TSA Systems Control Contest

Problem:

Your task is to build and automate a Personnel Lift for use at a local construction site. The objective of the lift is to offer a safe, OSHA inspected platform to transfer workers from the ground to the second story of the new building.

Design Brief:

Build and program a lift mechanism to move a level platform the required distance into the air. The system should raise and lower the platform at a safe speed, and the platform must also remain level throughout transfer; the object of this system is to not harm the workers.

Criteria:

The controlled device must:

- ▶ Lift the platform exactly one foot (12" or 30.5cm) into the air above the table. The height is measured from the top edge of the platform, not the top of the device. Any Lego™ 'bumps' on the platform are not included in this measurement.
- ▶ Have a switch to operate the lift. The location of the switch is unimportant.
- ▶ Move the platform in a safe and level manner. The platform must not tip over at any time and should not ascend or descend too rapidly.
- ▶ The speed and safety of a platform's ascent or descent will be tested by resting a standard 2x2 Lego™ brick on the platform and raising and lowering the platform.