Automated Blinds (Group 13)
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Automated Blinds Requirements

Summary

Background:

Window blinds serve an important role in our homes; protecting our privacy, blocking intense UV light and heat from the sun, or even serving as a decoration. But although blinds are useful, they may also be a hassle at times, especially when someone is in a hurry somewhere and forgets to adjust them. It is for that reason we ask ourselves, why don't we eliminate the hassle all together through the implementation of automated blinds?

Needs Identification:

People often forget to close their blinds when the night sets, or simply are not able to when they are away from home, thus leaving their living space vulnerable to the public. Therefore, creating automated blinds would solve this common issue since the blinds would automatically close when it gets dark.

Objectives:

Objective of this project is to design and prototype automated blinds that react to the outside brightness and open and close the blinds accordingly.

Requirements

Functionality:

- The blinds should read light intensity and adjust accordingly.
- The blind should also incorporate electronic, manually override.
- Should function every season of the year.

Performance:

- The automated blinds should be able to fully close/open in under 10 seconds

Economic

- Neglecting the price of the blinds themselves, the system should not exceed a cost value of $100.00

Energy:

- The automated blinds must draw its power from a standard 120V wall socket

Maintainability:

- No maintenance or service required, all part will be enclosed in a single package.

Manufacturability:

- All components within the product must be widely available and active.
- The PCB must be small enough to fit within a standard window blinds headrail
- The design must be implemented on a two-layer PCB

Operational (Physical Environment):

- Small enough to fit inside blind cover and compatible with any size blinds.
- Easy to install the system onto the blinds.

Reliability & Availability:

- System should function for a minimum of 3 years.
- Should be reliable since package is enclosed and comes as single component.

Usability:

- Automated blinds should be very intuitive and should be operable without reference to any documentation.

Documentation:

- Product will require no more than two documents total. One document for installation, and the second document will be the user manual.