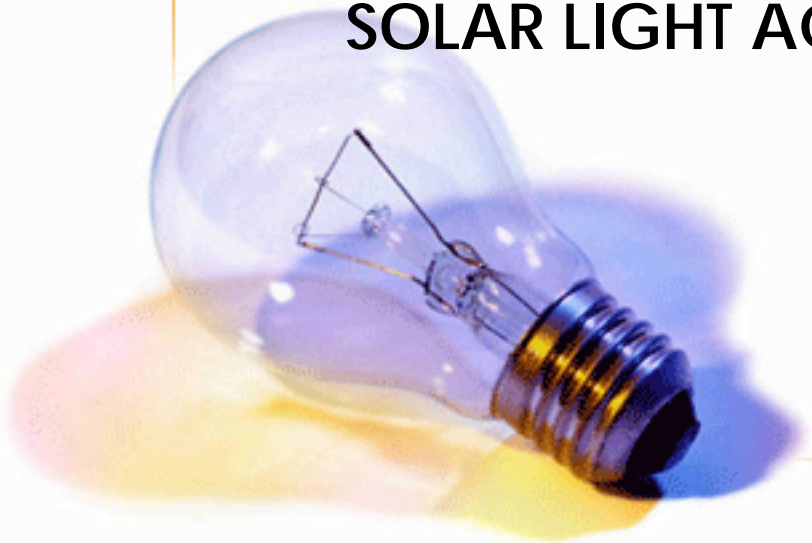


UNIVERSITY OF HOUSTON COLLEGE OF TECHNOLOGY

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THURSDAY APRIL 28TH, 2005**

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TEAM 12**

SOLAR LIGHT ACTIVATED BLINDS (SLABs)



**COLLEGE OF
TECHNOLOGY**
University of Houston



Solar Light Activated Blinds (SLAB's)

- ☀ Objectives and Background:
Robert Lewis
- ☀ Introduction, How it Works and Project Schedule:
Brian Paisley
- ☀ Flow Chart and Block Diagram:
Tasha McGinnis
- ☀ Cost Analysis, Circuit Schematic:
Jonathan Walker



Project Objectives

- ☀ **Provide an alternative to manually operated window blinds**
- ☀ **Prevent kids from suffocating by getting entangled in the cords of traditional blinds.**
- ☀ **Save plants by limiting amount of sunlight through window.**





Project Background

This is Kaeli. She became entangled in the cord from a window blind and died from accidental asphyxiation at the age of 14 months.

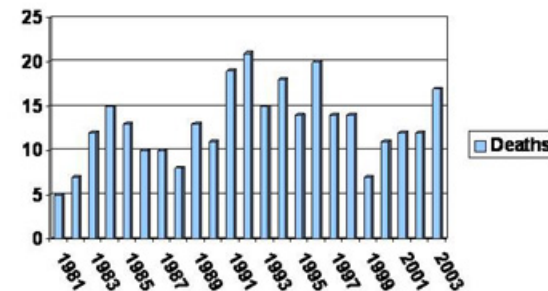


 **It is estimated that between 15 and 20 kids died from window blinds in 2003.**

 **A child dies every 2 weeks from corded window treatments.**

CPSC Reported Deaths 1981 – 2003

* 50% unreported per Journal of the American Medical Association



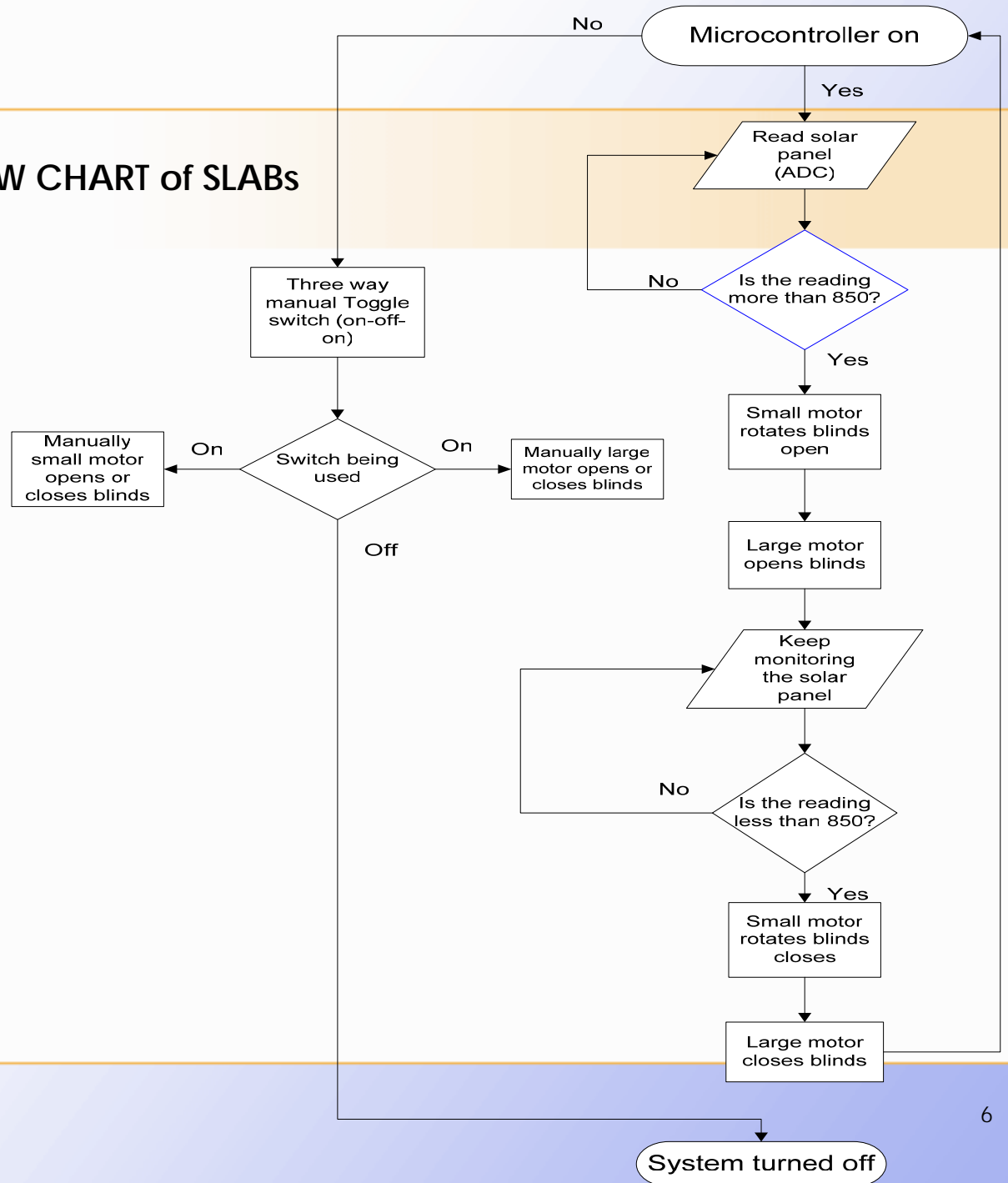


How The Solar Light Activated Blinds (SLABs) Works

- ☀ **The sunlight activates the Solar Panel and sends out a voltage to the microcontroller.**
- ☀ **The microcontroller turns on the relays which closes the connection to the switches and the power turns on the motor.**
- ☀ **One motor revolves the blades of the blinds while the other motor opens the blinds from one side to the other.**

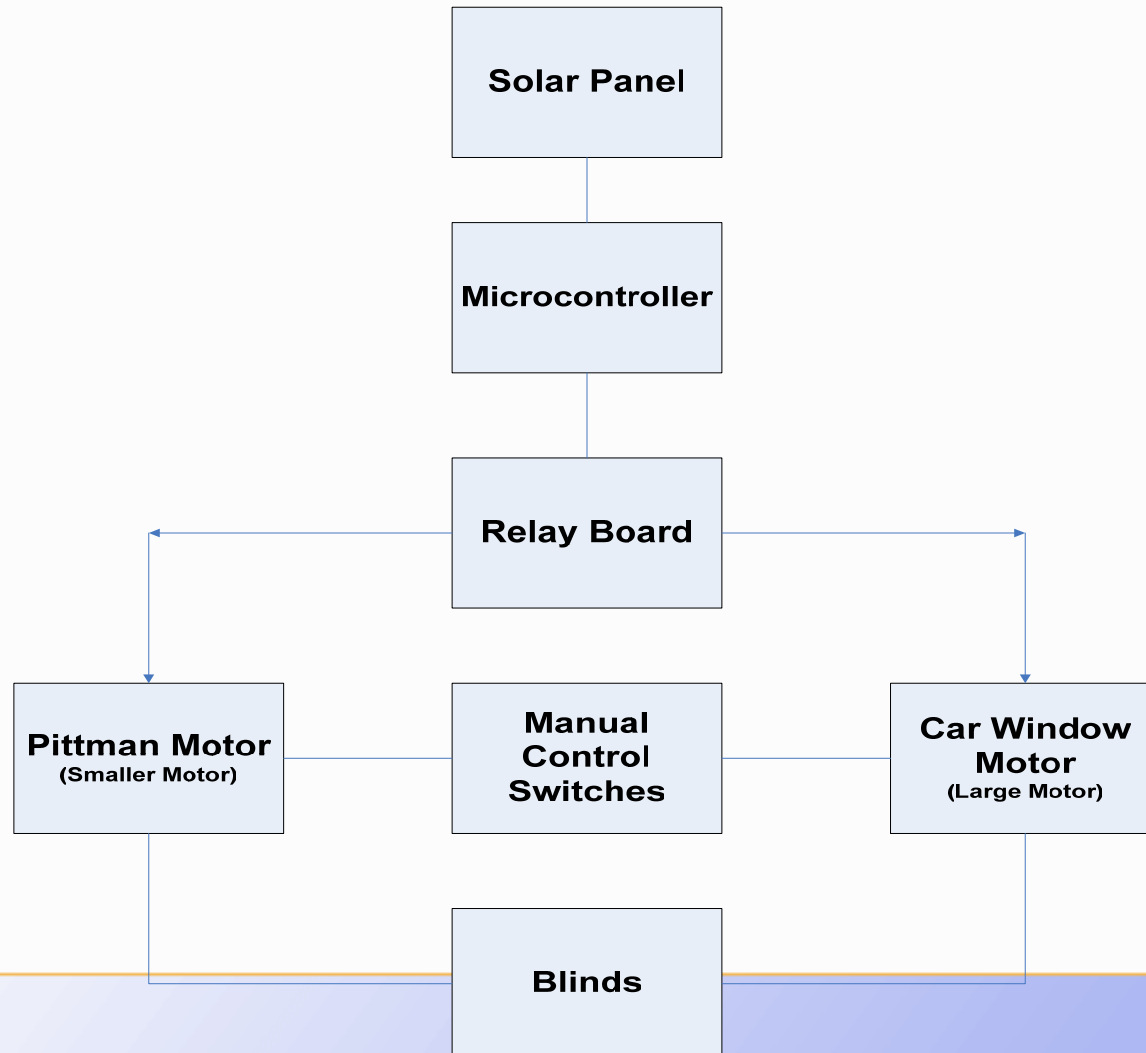


FLOW CHART of SLABs





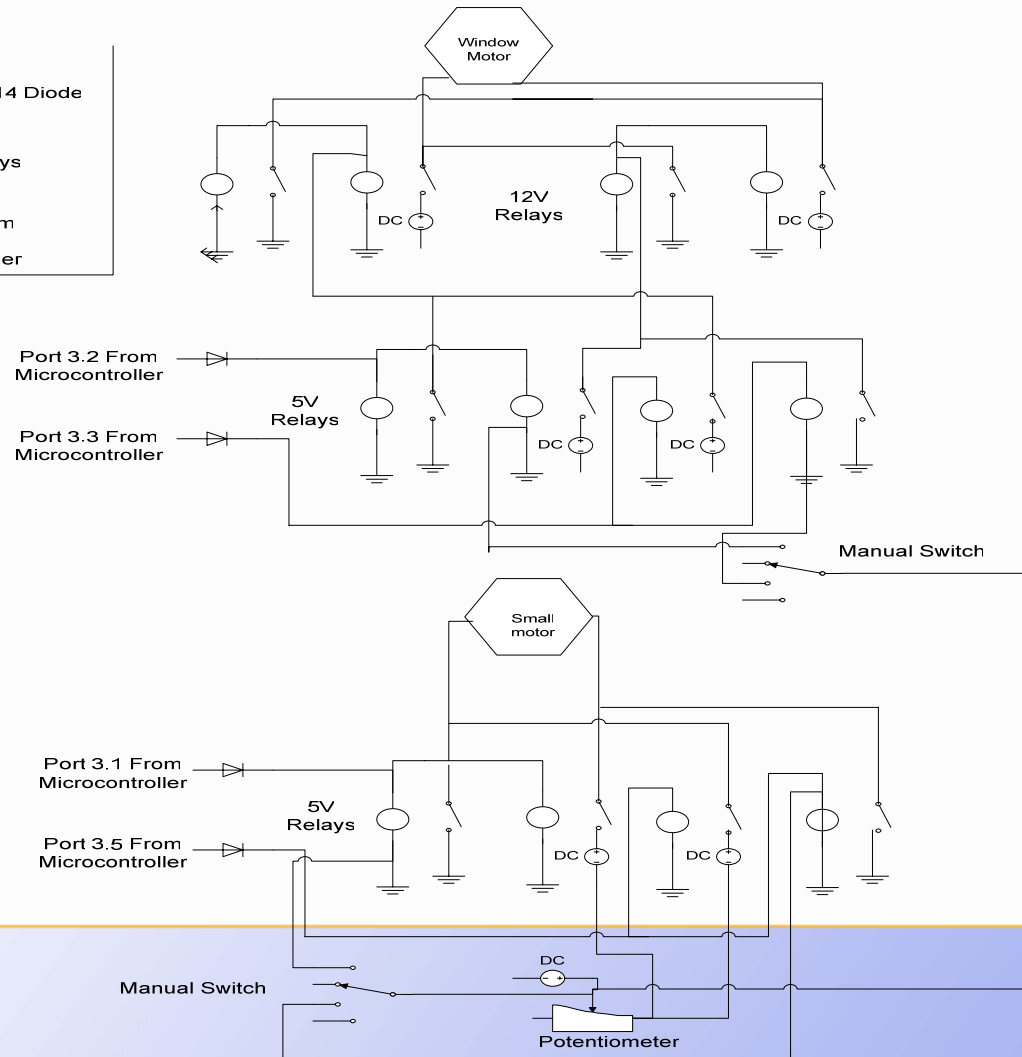
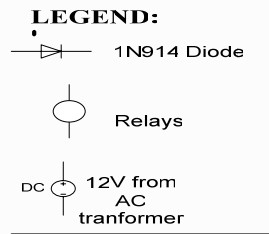
Block Diagram of Solar Light Activated Blinds SLABs





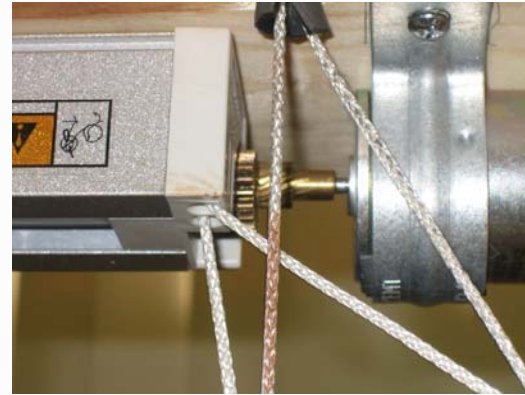
Circuit Schematics

Solar Light Activated
Blind (SLABS) Relay
Board Schematics





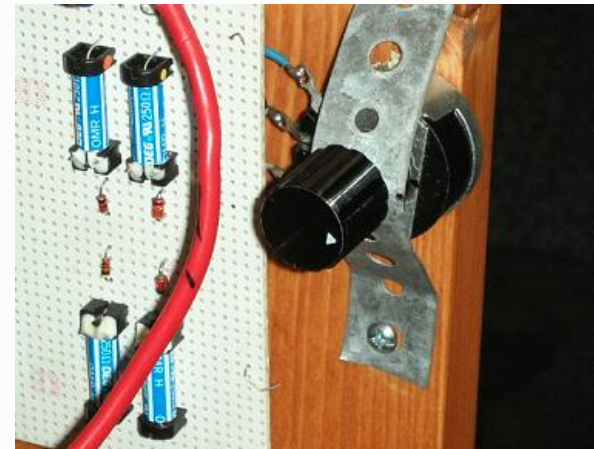
Pulley and Motor attachments





Speed Control Sensor

The potentiometer acts like a speed control switch which connects to the Pittman motor which controls the speed of the blinds opening. These gives the User more control on the speed on how fast or slow the blinds open and close. It works by adjusting resistance allowing more current to flow through allowing the blinds to open and close fast or slow.





Estimated Costs

Table 2 Current financial usage reporting		
<u>Item</u>	<u>Est. Cost</u>	<u>Actual Cost</u>
Solar Panel/6V/32mA	\$15.00	\$11.95
Mini Vertical Blinds	\$45.00	Donated
3-Way Toggle Switch	\$5.00	\$5.25
Pitman Motors (x2)	\$20.00	\$14.00
Lumber and Utilities such as screws and nails	\$22.34	Donated
Reed Relay	\$1.00 x8	\$2.79 x8
AC-DC 1.5V-12V Adapter	\$9.99	\$10.95
Banana Plugs	\$.25 x10	\$.85 x10
4"x6" PC Board	\$5.00	\$8.95
Car Window Motor	\$25.00	Donated
Connectors (x14)	\$10.50	\$14.00
MinMax/Standoff Kit	\$3.00	\$6.00
Terminal Bringouts	\$40.00	\$24.95
BOSH Relay-30/40A 12VDC Coil (x2)	\$10.00	\$7.90
Car Relay Connectors	\$1.00	\$2.00
Cost of Labor	\$1204.48	\$1204.48
Totals	\$1432.81	\$1339.25



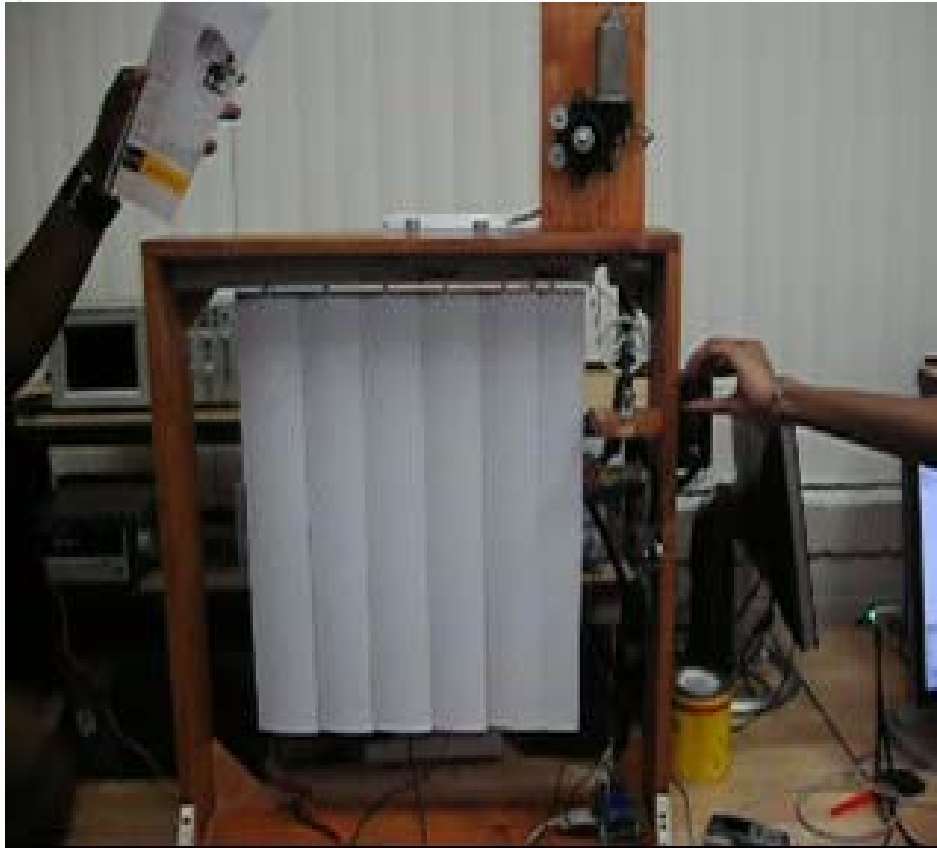
Blinds Controlled by the Manual Switch

This Manual toggle switch will be used by Group 12 as the switch to turn the blinds on and off. It will also be used to adjust the two different settings of the blinds. In one setting of the blinds, the blinds will be able to open up by turning each individual blind, exposing sunlight into the room. In the second setting the blinds will fully open and expose the entire room with sunlight.





Blinds Controlled by the Microcontroller



The Solar Panel is used to detect the sunlight when the sun comes out. When the sunlight is detected by the solar sensor it will send a voltage to the microcontroller's pin, whichever pin that may be. The microcontroller will receive the signal and then the blinds will open up a certain way depending on which "ON" the three-way switch is on. There are two "ON" switches. The blinds will partially open with each blind turning at a 90 degree angle.



Questions

**ANY
QUESTIONS???**