Invention Project

Title: Junior Light Switcher

Problem: My younger brother and sister are too small to reach the light switches. I always have to go turn on the light for them. How can I make it so they can turn their bedroom room lights on or off by themselves?

Research:

I found out that light switches are pretty safe things to work with. However, you can't use wires around them because the wire could get into the switch and cause a short circuit. It could even kill you if you touch the wire.

Some other people have been working on this problem, too. The term "adaptive devices" means things that help people do things they can't do for themselves. Some people have already made a device to help kids reach light switches, but I decided I wanted to develop my own.

Resources:

http://www.adaptiveaccess.com/home_changes.php
http://www.cpsc.gov/
http://www.osha.gov/

Solution:

I plan to extend the reach of my brother and sister by using a wooden rod with a "grabber" on the end that will let them reach the light switch. I also think I could make one that is permanent for the switch in their room. I have to use safe materials that don't conduct electricity so that they can't get a shock from the light switch. I plan to use wood and plastic to make my lightswitcher.

Design:

First, I measured my brother and sister's reach when they are standing. Then I measured how far it is to the light switch. I found that a 40cm rod would be long enough to help them reach the light switch. Because this will be used by a three year old and a four year old, I rounded the end of the rod to make it safe.

Next, I had to put something on the rod that would grab the light switch. It would have been easy to use wire, but dangerous! So we decided to try making something from wood. A block of wood on the rod would let them push the switch up, but not pull it down. I decided to dig a hole into the block that was the size of the switch. My father helped me cut the rod and dig a hole into the block. We wore safety goggles and ear protectors to be safe.

Here's what my device looks like:



I also decided to make a permanent lightswitcher for the light in their room. I took a different rod and drilled a hole in the end. Then we put grass trimmer line through the hole in the rod. My dad helped me carefully drill a hole in the light switch knob. We put the line through the hole and used a wire end cap to hold the line together to make a loop.

Here's what the permanent lightswitcher looks like:

Data:

We tried the device with my brother and sister on ten light switches in our house. The only ones that caused trouble were the ones over our counter in the kitchen and over the sink in the bathroom. They had trouble reaching those.

We had to make the trimmer line connection strong so they wouldn't pull it apart.

Analysis:

This device worked very well. Both my brother and my sister can now reach their own light switches. They like being able to do it. So they don't bother me any more to help them. The only problem is when they lose the lightswitchers I made for them.

Conclusion:

This is a great little invention. Some people are making money selling this idea. But I designed my own. I learned that the hole that covers the switch has to be large enough for small kids to aim it to cover the switch. If it's too small, they can't make it hook up.

I also found out that inventions have to look good. I even sanded the one I made. But it wasn't painted and the wire cap on the loop didn't look good. My mom liked the idea, but she said she didn't want the permanent one to be on the light switches until I could make one that looked better.
