Motion Detection Faucet

Description:
This particular faucet consists of a spout, a motion sensor and a switch/lever to adjust temperature. It is completely chrome except for the sensor which is covered in an almost black piece of plastic. The following is a rough sketch of the device.

The switch is located on top of the faucet. The sensor is located underneath the spout.

Impressions:
- The first thing I noticed was the lack of visibility. If the user has never used this type of faucet, they are most likely going to be confused with how to interact with it. The faucet requires recognition from a previous encounter for proper operation.
- The temperature label is great for English speaking users who can map the letters H and C to hot and cold but what of users from other cultures. They might not have the same mapping as an English speaker might.
- In traditional faucets, you have to let the water run for a short while before the temperature adjusts to what the user desires. In this situation, the user must continually keep their hand under the faucet as the temperature adjusts. This may result in user discomfort. There is no immediate feedback.
**Functionality:**
The user adjusts the temperature by moving the switch to an appropriate level between hot and cold temperatures labeled by the letters H and C. One adjusted, the user places their hands underneath the spout where the sensor detects the hands and activates the water flow. Once the user removes their hands, the sensor acknowledges this and turns off the water flow.

**Tasks (Typical User):**
- Turn on/off water flow.
- Adjust water temperature.

The functionality is equal to the tasks required for a typical user.

**Goals:**
- Is it intuitive to turn water flow on and off?
- Is the water temperature adjusted properly?

**Usability Goals Table:**

<table>
<thead>
<tr>
<th>Usability Attribute</th>
<th>Measuring Concept</th>
<th>Measuring Method</th>
<th>Unacceptable Levels</th>
<th>Worst Case Level</th>
<th>Planned Levels</th>
<th>Best Case Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intuitiveness of operating on/off control</td>
<td>0 seconds to &gt;1 minute</td>
<td>Average Time</td>
<td>&gt; 1 minute</td>
<td>1 minute</td>
<td>20 seconds to 59 seconds</td>
<td>&lt; 20 seconds</td>
</tr>
<tr>
<td>Correct use of temperature control</td>
<td>Correct or Incorrect</td>
<td>Average Uses</td>
<td>&lt; 75%</td>
<td>75%</td>
<td>75% to 100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Breakdowns:**
A typical user might mistake the temperature control for the on/off switch as well. There is no indication that another method of interaction is available. The sensor is obscured by the spout. For non-English speaking users (might not be typical users), there is a cultural constraint with users English characters to identify hot and cold. Users may inadvertently set the temperature to hot when they mean cold. Temperature adjustment provides no immediate feedback. Even when the setting is on hot, it may take a while for the faucet to change.

**Possible Improvements:**
A label of some sort could be place on the faucet to indicate that placing hand underneath the spout activates the water flow. Some faucets of this type implement this. For the temperature control, in addition to the H and C, perhaps introduce the colors red for hot
and blue for cold. This mapping will make the temperature control more visible and might also bridge many cultural constraints.

**Conclusion:**
Aside from the improvements, the design is still pretty good. The user desires to place their hands under the spout so the likelihood of the user intuitively using the faucet is very high. The temperature adjustment is also not bad in that it hides the fact that there are actually two flows of water (hot and cold) and makes the user believe there is only one and they adjusting that temperature.

**Certification of Authenticity:**
I certify that this submission is entirely my own work, as per course collaboration policy.

**Signature:** ____________________________ **Date:** ___________