**Test Documentation**

**The Smackdown Challenge**

|  |  |  |
| --- | --- | --- |
| **Specification** | **Test Conditions** | **Pass/Fail** |
| 1. Movement of single light | Plug in Arduino. Watch to see that a single light “moves” around the entire lightstrip and that every LED gets illuminated.  Pay close attention to the ends of the lightstrip. Make sure the light moves seamlessly across the lightstrip ends with no skips or lags.  Reverse the direction of movement using the player controls and ensure the “moving” light continues to operate as before, but in the reverse direction. | Pass |
| 2. Hitzone | Test each player hitzone by pressing a player button within the corresponding player hitzone range. Watch for reaction (other specifications detail reaction). Ensure reaction only occurs within hitzone by pressing button outside of hitzone. No reaction should take place. Once light enters hitzone, reaction should occur. Make sure all LEDs assigned to hitzone cause reaction with button presses and no others. Test for both players. | Pass |
| 3. Hit | Test a hit by pressing a player button within the corresponding player hitzone range. Immediately after a any hit within the hitzone, the light should stop “moving”. Test for both players. | Pass |
| 1. Change in direction and increase in difficulty | Perform a hit for a player. After the hit specifications are complete, the light “movement” should change direction and its “movement” speed should increase slightly. This should occur at the exact location from where the light was when the player hit. Make sure there is no skipping from when the button is pressed to the change in direction/speed. Test for both players. | Pass |
| **Specification** | **Test Conditions** | **Pass/Fail** |
| 5. Points | Perform a hit on a player’s single target LED. The player’s score should increase by one point. Perform a Hit on every other LED within the player’s hitzone and the player’s score should decrease by one point without going negative. Test for both players. | Pass |
| 6. Levels | Make successive hits on a player’s single target LED. Once that player hits the required amount of points for the current level, the level should immediately end. Watch for a change in display in the LEDs. A new level should then begin and follow all previous specifications with the “movement” speed of the single light remaining the same from the previous level. The required amount of points for this new level should be one less than the previous level. Make sure the level ends only when a player has accumulated the required amount of points for that level. Test for all players and levels. | Pass |
| 1. Overall winner | Progress the game to the final level (required points is 1). When a player wins the final level, an overall winner should be selected corresponding to the player who has won the most levels. The lightstrip should change display to reveal the overall winner. Test several combinations of scores to ensure only the player who has won the most levels is the overall winner. | Pass |
| 8. Game over | Within a level, perform a combination of player hits so that the speed of the “moving” light increases. Make the player hits so that they are within the hitzone, but do not hit the single target LED. When the speed of the “moving” LED becomes too fast to reasonably make an accurate hit, the game should end with a change in display. Test for each level and a variety of hits. | Pass |