

Spatial Mapping of Light Switches

This survey is part of a bachelor thesis at Hasselt University and is designed to investigate how people experience and solve the spatial mapping problem of light switches. The survey should take about 20 minutes to complete. Your responses are anonymized and remain confidential.

We appreciate your willingness to participate.

For any queries, feel free to contact reinaert.vandecruys@student.uhasselt.be

*Required

Demographics

1. What is your gender?

Mark only one oval.

Female

Male

Other: _____

2. What is your age?

Scenario 1

You will be asked some questions regarding different images. Each image will have some yellow annotations on it, which are not part of the image and are only present to simplify the answering process; when thinking about the questions, you should act like the yellow annotations do not exist.

3. According to you, which switches control which lights, based on this image? *



Tick all that apply.

	Switch A	Switch B	Switch C	Switch D
Light 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. How certain are you that the switches work the way you indicated? *

Mark only one oval.

1 2 3 4 5

Very uncertain Very certain

5. What role did the following assumptions play when you solved this scenario? *

Mark only one oval per row.

	No role	Small role	Large role
Larger switches control more lights.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger switches control lights that are closer to it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Each switch controls the lights that are closest to it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher placed switches control larger lights.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger switches control lights that are further away from it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger switches control larger lights.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher placed switches control more lights.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. If you made any other assumptions or have some remarks, please add them here.

Scenario 2

Please answer the same questions again for a second scenario. As before, anything yellow is not part of the image.

7. According to you, which switches control which lights, based on this image? *



Tick all that apply.

	Switch A	Switch B	Switch C
Light 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. How certain are you that the switches work the way you indicated? *

Mark only one oval.

1 2 3 4 5

Very uncertain Very certain

9. What role did the following assumptions play when you solved this scenario? *

Mark only one oval per row.

	No role	Small role	Large role
Higher placed switches control larger lights.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger switches control lights that are closer to it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger switches control lights that are further away from it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Each switch controls the lights that are closest to it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger switches control more lights.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Larger switches control larger lights.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Higher placed switches control more lights.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. If you made any other assumptions or have some remarks, please add them here.

Augmented Reality

For the remainder of the survey, we will consider augmented reality, or AR. To complete the survey, you must first understand what AR is.

Augmented reality is a view of the real world that is "augmented" with computer-generated data. A well-known example of this is the game Pokémon Go, in which players look at the real world through their smartphone. The smartphone adds game elements, like Pokémons, to the player's vision. This gives the player the impression that these elements actually exist in the real world.

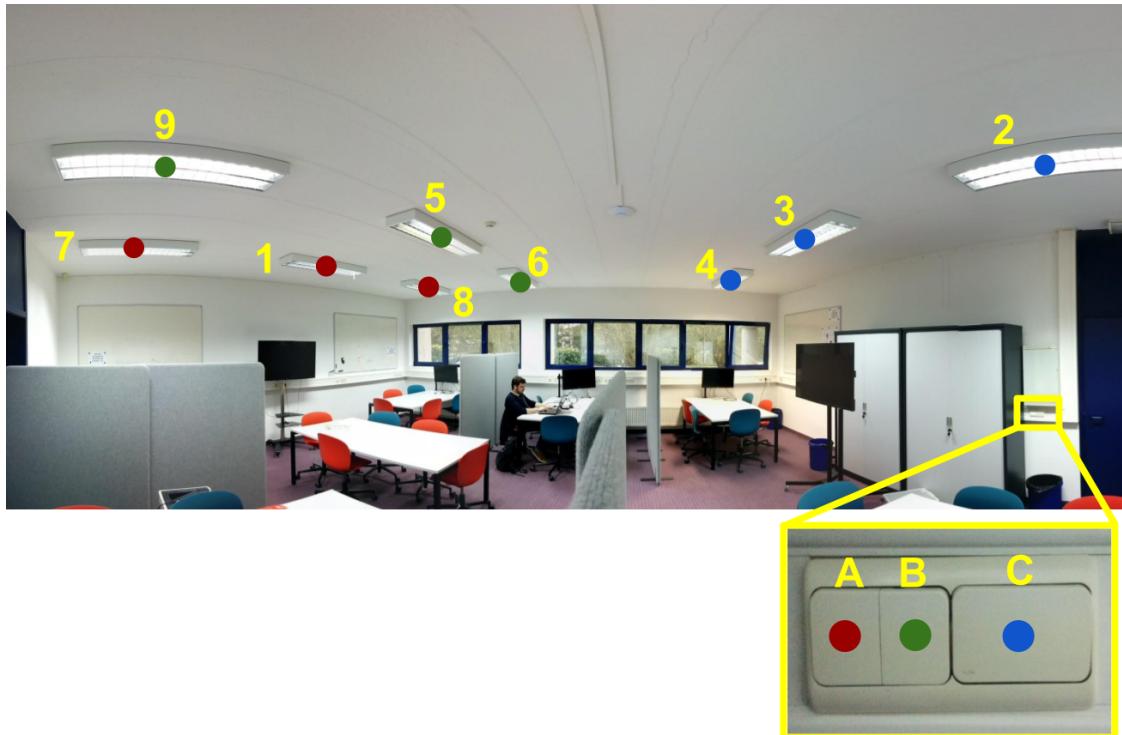
Pokémon Go adds a Pokémon to the player's vision



Scenario 3

For the remainder of the survey, imagine you are looking at the world through a smartphone or through an augmented reality headset. In each of the following scenarios, your AR device will try to aid you by augmenting your vision in some way. Anything yellow is not part of these visualizations.

11. According to you, which switches control which lights, based on this image? *



Tick all that apply.

	Switch A	Switch B	Switch C
Light 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. How certain are you that the switches work the way you indicated? *

Mark only one oval.

1 2 3 4 5

Very uncertain Very certain

13. I believe that, in real life, the above visualization would be... *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Easy to learn	<input type="radio"/>				
Fast to work with	<input type="radio"/>				
Resistant to errors	<input type="radio"/>				
Useful	<input type="radio"/>				
Enjoyable	<input type="radio"/>				

14. If you have any remarks, please add them here.

Scenario 4

15. According to you, which switches control which lights, based on this image? *



Tick all that apply.

	Switch A	Switch B	Switch C	Switch D
Light 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. How certain are you that the switches work the way you indicated? *

Mark only one oval.

1 2 3 4 5

Very uncertain Very certain

17. I believe that, in real life, the above visualization would be... *

Mark only one oval per row.

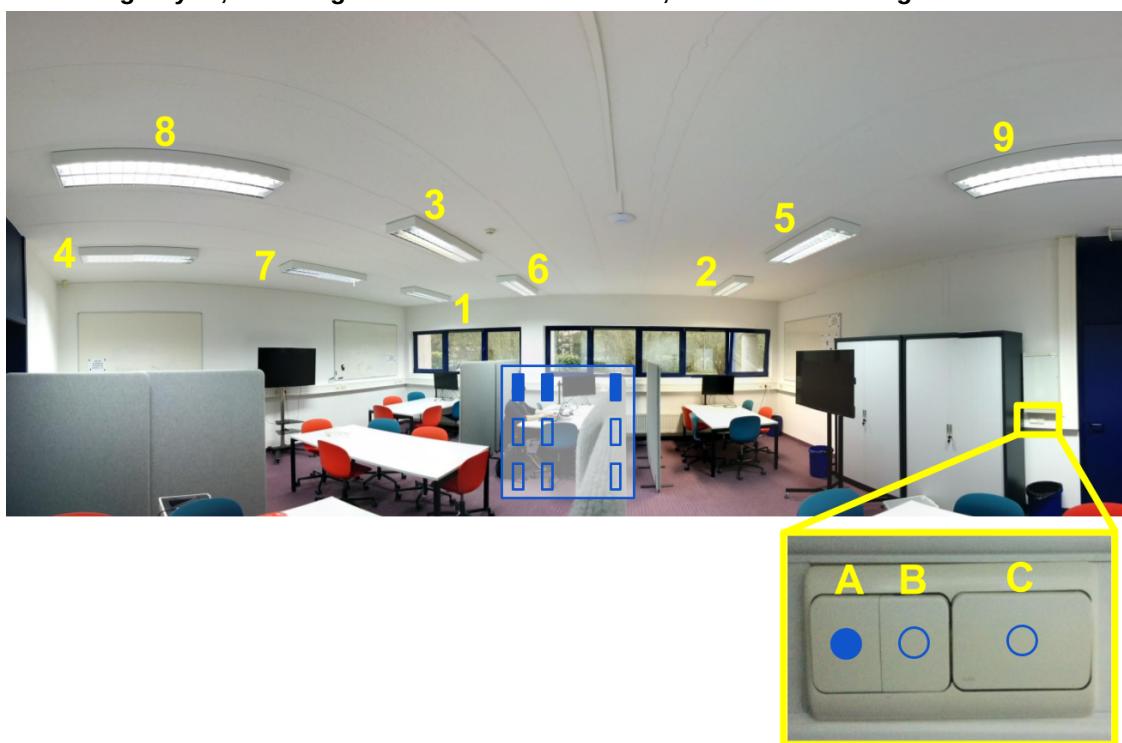
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Easy to learn	<input type="radio"/>				
Fast to work with	<input type="radio"/>				
Resistant to errors	<input type="radio"/>				
Useful	<input type="radio"/>				
Enjoyable	<input type="radio"/>				

18. If you have any remarks, please add them here.

Scenario 5

In this scenario, your AR device is helping you find the lights connected to one specific switch.

19. According to you, which lights does switch A control, based on this image?



Tick all that apply.

Switch A
Light 1
Light 2
Light 3
Light 4
Light 5
Light 6
Light 7
Light 8
Light 9

20. How certain are you that the switches work the way you indicated? *

Mark only one oval.



21. I believe that, in real life, the above visualization would be... *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Easy to learn	<input type="radio"/>				
Fast to work with	<input type="radio"/>				
Resistant to errors	<input type="radio"/>				
Useful	<input type="radio"/>				
Enjoyable	<input type="radio"/>				

22. If you have any remarks, please add them here.

Scenario 6

23. According to you, which switches control which lights, based on this image? *



Tick all that apply.

	Switch A	Switch B	Switch C	Switch D
Light 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. How certain are you that the switches work the way you indicated? *

Mark only one oval.

1 2 3 4 5

Very uncertain Very certain

25. I believe that, in real life, the above visualization would be... *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Easy to learn	<input type="radio"/>				
Fast to work with	<input type="radio"/>				
Resistant to errors	<input type="radio"/>				
Useful	<input type="radio"/>				
Enjoyable	<input type="radio"/>				

26. If you have any remarks, please add them here.

Scenario 7

27. According to you, which switches control which lights, based on this image? *



Tick all that apply.

	Switch A	Switch B	Switch C
Light 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. How certain are you that the switches work the way you indicated? *

Mark only one oval.

1 2 3 4 5

Very uncertain Very certain

29. I believe that, in real life, the above visualization would be... *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Easy to learn	<input type="radio"/>				
Fast to work with	<input type="radio"/>				
Resistant to errors	<input type="radio"/>				
Useful	<input type="radio"/>				
Enjoyable	<input type="radio"/>				

30. If you have any remarks, please add them here.

Scenario 8

31. According to you, which switches control which lights, based on this image? *



Tick all that apply.

	Switch A	Switch B	Switch C	Switch D
Light 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Light 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

32. How certain are you that the switches work the way you indicated? *

Mark only one oval.

1 2 3 4 5

Very uncertain Very certain

33. I believe that, in real life, the above visualization would be... *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Easy to learn	<input type="radio"/>				
Fast to work with	<input type="radio"/>				
Resistant to errors	<input type="radio"/>				
Useful	<input type="radio"/>				
Enjoyable	<input type="radio"/>				

34. If you have any remarks, please add them here.

Scenario 9

In this last scenario, we will again focus on a single switch, C in this case.

35. According to you, which lights does switch C control, based on this image?



Tick all that apply.

Switch C

Light 1	<input type="checkbox"/>
Light 2	<input type="checkbox"/>
Light 3	<input type="checkbox"/>
Light 4	<input type="checkbox"/>
Light 5	<input type="checkbox"/>
Light 6	<input type="checkbox"/>

36. How certain are you that the switches work the way you indicated? *

Mark only one oval.

1 2 3 4 5

Very uncertain Very certain

37. I believe that, in real life, the above visualization would be... *

Mark only one oval per row.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Easy to learn	<input type="radio"/>				
Fast to work with	<input type="radio"/>				
Resistant to errors	<input type="radio"/>				
Useful	<input type="radio"/>				
Enjoyable	<input type="radio"/>				

38. If you have any remarks, please add them here.

Dimmers 1

The last three sections are about dimmers, which are switches that can control the brightness of their connected lights.

Standard switch



39. How intuitive do you find the following actions to increase the brightness of the lights using the above switch? *

Mark only one oval per row.

	Very unintuitive	Unintuitive	Neutral	Intuitive	Very intuitive
Long press	<input type="radio"/>				
Short press	<input type="radio"/>				
Double press	<input type="radio"/>				

40. How intuitive do you find the following actions to turn off the lights using the above switch? *

Mark only one oval per row.

	Very unintuitive	Unintuitive	Neutral	Intuitive	Very intuitive
Double press	<input type="radio"/>				
Long press	<input type="radio"/>				
Short press	<input type="radio"/>				

41. If you have any remarks, please add them here.

Dimmers 2

Rotating switch



42. How intuitive do you find the following actions to increase the brightness of the lights using the above switch? *

Mark only one oval per row.

	Very unintuitive	Unintuitive	Neutral	Intuitive	Very intuitive
Rotate clockwise	<input type="radio"/>				
Double press	<input type="radio"/>				
Short press	<input type="radio"/>				
Long press	<input type="radio"/>				
Rotate counterclockwise	<input type="radio"/>				

43. How intuitive do you find the following actions to turn off the lights using the above switch? *

Mark only one oval per row.

	Very unintuitive	Unintuitive	Neutral	Intuitive	Very intuitive
Rotate counterclockwise	<input type="radio"/>				
Long press	<input type="radio"/>				
Rotate clockwise	<input type="radio"/>				
Short press	<input type="radio"/>				
Double press	<input type="radio"/>				

44. If you have any remarks, please add them here.

Dimmers 3

45. Which type of switch would you prefer to control the brightness of a light. *

Mark only one oval.



Rotating switch



Sliding switch

I have no preference
 Other:

I don't know

46. Please explain your preference, if any.

Conclusion

47. If you have any remarks, feedback or suggestions regarding this survey, please feel free to add them here.

48. If we may contact you in case we have further questions regarding your responses, please enter your email address here.

Powered by

