

100 Needs Statements and Documentation

100 Needs:

1. The product has easy installation instructions.
2. The materials are strong
3. The product has an auto close feature
4. The product is easily adjusted
5. The product works with previous installations
6. The product works with WiFi
7. The product times well with electric locks and restraints
8. The product will start opening before customer gets too close
9. The product will close if you do not enter the door
10. The product can unlock the door
11. The product can lock the door
12. The product can program height differences
13. The product will stay attached to the door over extended periods of time
14. The materials will last over 10 years
15. The product can alarm when the door is open
16. The product can check to see if there is objects in the way of the door
17. The installation will have all tools needed for the product to be installed
18. The product stays attached to the door without lasting damage to the door
19. The product can be painted
20. The product is lightweight
21. The product is sturdy
22. The product can customize speed settings
23. The product can use other products' buttons and key fobs
24. The product can delay closure
25. The product can disengage so that the door can be manually opened or closed
26. The product can open for animals
27. The product can stay closed around children
28. The product can be used while there is a fire
29. The product has 90 or 180 degree openability
30. The product has an easy program interface
31. The product can be used on different door surfaces
32. The product can be connected with an app with any OS.

33. The product doesn't have any external wiring hanging.
34. The product doesn't have any point edges
35. The product prevents the door from closing while users are walking through it.
36. The product stops operation when sensing more resistance than usual.
37. Need dependable performance in all conditions
38. The product has adjustable settings.
39. The product has a UI which is easy to understand/operate.
40. The product has helpful customer support resources.
41. The product does not require a large amount of power.
42. The product is easy to supply power to.
43. The product's mechanical properties are energy efficient.
44. The product's electrical components are self-contained/not bulky.
45. The product's materials are clearly identified.
46. The product is comparable to "high-end" products.
47. The product is affordable.
48. The product is consistent.
49. The product's component ratings exceed the typical use-environment conditions.
50. The product's software is not prone to bugs.
51. The product is easy to repair/debug if necessary.
52. The product does not interfere with manual opening of doors.
53. The product clearly states its functionality to users.
54. The product has failsafes to prevent damage to its components.
55. The product's most basic functioning requires little to no user programming.
56. The product comes with a user manual that is clear and not overly complicated.
57. The product is intuitive to use/setup with minimal need for instructions.
58. The product has digital instructions set.
59. Products are installed by those with no experience.
60. The product has simple pieces for quick installation
61. Product has all tools needed for installation
62. Product is made of quality materials
63. The product has weather and use prevention
64. The product is ADA compliant
65. The product has all installation tools to install right out of the box
66. The product can withstand heavy use
67. The product has easy to follow instructions while remaining helpful.
68. The product can be installed by inexperienced users.
69. The product has a standardized method of installation.
70. The product works in lighter-duty applications.
71. The product has a sufficiently wide range of power output.

72. The intended use-environment of the product is clear to consumers before purchasing.
73. The product allows the door to be opened with minimal effort.
74. The product holds the door open for a sufficient amount of time.
75. The product can provide premium material quality.
76. The product can operate more quietly.
77. The product can maintain consistent detection accuracy.
78. The product detects different objects.
79. The product differentiate between humans and objects.
80. The product distinguishes between adults and kids.
81. The product detects if any external force is applied on the door.
82. The product can have a durable build for long-term use.
83. The product can be resistant to termites.
84. The product can be easy to clean.
85. The product can have low-maintenance, long battery life.
86. The product provides controlled access for security.
87. The product distinguishes between intruders and authorized persons.
88. The product can allow temporary access.
89. The product can allow access for a specific amount of time.
90. The product detects different things.
91. The product can reliably recognize microchips.
92. The product can maintain stable software and connectivity.
93. The product can provide responsive after-sales support.
94. The product delivers long-lasting, dependable power.
95. The product can provide better cost-benefit value.
96. The product can operate reliably and consistently.
97. The product can provide security and peace of mind.
98. The product can allow easy, non-invasive installation.
99. The product can be controlled remotely via app.
100. The product has obstacle detection and safety features
101. The product is able to work in case of a power outage

Design Criteria Grouping:

Visuals	19, 33, 34, 46
Components	2, 14, 20, 21, 62, 63, 75, 82, 83, 84
Instructions	1, 56, 57, 58, 60, 61, 67, 69
Installation	5, 17, 18, 29, 31, 59, 65, 68, 70, 98
Quality	13, 66, 73, 74, 94, 95
Ease of use	4, 6, 8, 30, 32, 39, 47, 48, 52, 55
Program customization	3,9,10,11
Safety	8, 9, 15, 16, 25, 26, 27, 28, 35, 36, 64, 79, 80, 81, 86, 87, 97, 100, 101
Power	41, 42, 43, 85, 94, 101
Connectivity	10, 11, 23, 91, 92, 99
Support	40, 50, 51, 53, 54, 93

Criteria Ranking

1. Safety

Safety is the top priority in any product to ensure no users are harmed and no objects are damaged during operation.

2. Ease of Use

This is the main selling point of our product and therefore is a main priority.

3. Installation

Users must be able to install the product themselves or have a caretaker do so for them. They shouldn't have to spend more to hire an installer.

4. Instructions

If the consumer gets stuck anywhere in the installation or configuration process, they should have a resource to help them. However the goal is still to make a product that is intuitive enough that instructions are rarely needed.

5. Quality

Each material should be high quality to prevent quick degradation and shortages. The quality should also balance with price to make this product sturdy, reliable and affordable.

6. Power

The product should be able to run with household energy as well as be independent in case of emergencies. The power should be reliable and easily accessible and let the product run for extended periods of time.

7. Connectivity

The Product should be connected to a software so it can be used anywhere and should connect to the user's phone and potentially wifi.

8. Support

If the user gets stuck at any part of building or using the product, there should be something or someone who can help them.

9. Components

The components should be simple groups of pieces combined together. This should help with replacement and installation, but should not be such a heavy focus that the product falls apart easily because there are so many small pieces.

10. Visual

Though looks are important, the design should be simple and not put importance on how cool or different it looks.

11. Program Customization

The programming should be easy to use and understand, but there will be an understanding that advanced customization will increase the difficulty.

Final Grouping and Ranking

1. Safety

- a. The product will start opening before customer gets too close
- b. The product will close if you do not enter the door
- c. The product can alarm when the door is open
- d. The product can check to see if there are objects in the way of the door.
- e. The product can disengage so that the door can be manually opened or closed
- f. The product can open for animals
- g. The product can stay closed around children
- h. The product can be used while there is a fire
- i. The product prevents the door from closing while users are walking through it.
- j. The product stops operation when sensing more resistance than usual.
- k. The product is ADA compliant
- l. The product differentiate between humans and objects.
- m. The product distinguishes between adults and kids.
- n. The product detects if any external force is applied on the door.
- o. The product provides controlled access for security.
- p. The product distinguishes between intruders and authorized persons.
- q. The product can provide security and peace of mind.
- r. The product has obstacle detection and safety features
- s. The product is able to work in case of a power outage

2. Ease of Use

- a. The product is easily adjusted
- b. The product works with WiFi
- c. The product will start opening before customer gets too close
- d. The product has an easy program interface
- e. The product can be connected with an app with any OS.
- f. The product has a UI which is easy to understand/operate.
- g. The product is affordable.
- h. The product is consistent.
- i. The product does not interfere with manual opening of doors.
- j. The product's most basic functioning requires little to no user programming.

3. Installation

- a. The product works with previous installations.
- b. The installation will have all tools needed for the product to be installed.

- c. The product stays attached to the door without lasting damage to the door.
 - d. The product has 90 or 180 degree openability.
 - e. The product can be used on different door surfaces.
 - f. Products are installed by those with no experience.
 - g. The product has all installation tools to install right out of the box.
 - h. The product can be installed by inexperienced users.
 - i. The product works in lighter-duty applications.
 - j. The product can allow easy, non-invasive installation.
4. Instructions
- a. The product has easy installation instructions.
 - b. The product comes with a user manual that is clear and not overly complicated.
 - c. The product is intuitive to use/setup with minimal need for instructions.
 - d. The product has digital instructions set.
 - e. The product has simple pieces for quick installation.
 - f. Product has all tools needed for installation.
 - g. The product has easy to follow instructions while remaining helpful.
 - h. The product has a standardized method of installation.
5. Quality
- a. The product will stay attached to the door over extended periods of time.
 - b. The product can withstand heavy use.
 - c. The product allows the door to be opened with minimal effort.
 - d. The product holds the door open for a sufficient amount of time.
 - e. The product delivers long-lasting, dependable power.
 - f. The product can provide better cost-benefit value.
6. Power
- a. The product does not require a large amount of power.
 - b. The product is easy to supply power to.
 - c. The product's mechanical properties are energy efficient.
 - d. The product can have low-maintenance, long battery life.
 - e. The product delivers long-lasting, dependable power.
 - f. The product is able to work in case of a power outage.
7. Connectivity
- a. The product can unlock the door.
 - b. The product can lock the door.
 - c. The product can use other products' buttons and key fobs.
 - d. The product can reliably recognize microchips.
 - e. The product can maintain stable software and connectivity.

f. The product can be controlled remotely via app.

8. Support

- a. The product has helpful customer support resources.
- b. The product's software is not prone to bugs.
- c. The product is easy to repair/debug if necessary.
- d. The product clearly states its functionality to users.
- e. The product has failsafes to prevent damage to its components.
- f. The product can provide responsive after-sales support.

9. Components

- a. The materials are strong.
- b. The materials will last over 10 years.
- c. The product is lightweight.
- d. The product is sturdy.
- e. The product is made of quality materials.
- f. The product has weather and use prevention.
- g. The product can provide premium material quality.
- h. The product can have a durable build for long-term use.
- i. The product can be resistant to termites.
- j. The product can be easy to clean.

10. Visual

- a. The product can be painted.
- b. The product doesn't have any external wiring hanging.
- c. The product doesn't have any point edges.
- d. The product is comparable to "high-end" products.

11. Program Customization

- a. The product has an auto close feature.
- b. The product will close if you do not enter the door.
- c. The product can unlock the door.
- d. The product can lock the door.