Step 1: Wiring the sensors:

1. Print out the Ninja wiring connections sheet OR have it available in a text editor
2. Separate the given 25 cables in to 4 sets of 4 cables 2 sets of 3 cables and 1 set of 2 cables
3. Plug one side of each set of 4 cables in the Ultrasonic, Bluetooth, OLED and Magnetometer pins
4. Plug each set of 3 cables in the touch and sound sensor pins
5. Plug the set of 2 cables in to the buzzer pins*
6. Write down the colour of the cable that you attached to each sensor pin on the Wiring sheet

*The Buzzer + pin is the long pin the buzzer – pin is the short pin

Step 2: Assembling the left ankle:

7. Place one of the 2 ankle pins in the hole in the left ankle
8. Thread one of the two 360 degree servo cables through the slot in the ankle
9. Position the 360 degree servo in its place
10. Secure the 360 degree servo in place with 2 long screws
11. Slide one of the 5 180 degree servos in to its slot (make sure the servo cable is in its slot)
12. Secure the 180 degree servo in place with 1 long screw

Step 3: Assembling the right ankle:

13. place the remaining ankle pin in the hole in the right ankle
14. thread one of the two 360 degree servo cables through the slot in the ankle
15. Position the 360 degree servo in its place
16. Secure the 360 degree servo in place with 2 long screws
17. Slide one of the 4 remainig 180 degree servos in to its slot (make sure the cable is in its slot)
18. Secure the 180 degree servo in place with 1 long screw

Step 4: Assembling the left foot/wheel to the left ankle:

19. Place a Dual servo horn in to the slot in one of the feet/wheels
20. Place the chosen foot/wheel over the Left ankle 360 degree servo head
21. Secure in place with a small screw

Step 5: Assembling the left foot/wheel to the right ankle:

22. Place a Dual servo horn in to the slot of the remaining foot/wheel
23. Place the remaining foot/wheel over the right ankle 360 degree servo head
24. Secure in place with a small screw

Step 6: Assembling the ankles to the legs:

25. Take note of the orientation of the Legs front and back
26. Thread the Left ankle and left foot servo cables through the left side hole in the legs
27. Slot the Left ankle in to the left side of the leg
28. Thread the Right ankle and Right foot servo cables through the Right side hole in the legs
29. Slot the Right ankle in to the right side of the leg

Step 7: Assembling the bottom body to the legs:

30. Insert the Leg clip through the centre square hole through the top of the bottom body
31. Take note of the orientation of the Bottom body
32. Thread the Left ankle and left foot cables through the left side hole in the bottom body
33. Thread the Right ankle and Right foot cables through the Right side hole in the bottom body
34. Insert the leg clip that is sticking out of the bottom of the bottom body through the centre square hole of the legs (Make sure the servo cables don't get caught in between the legs and bottom body whilst doing so)

Step 8: Preparing the bottom body:

35. Insert the Slider switch in to its slot in the bottom body
36. Insert the Slider switch support over the switch
37. Secure the Slider switch support in place with 1 long screw
38. Check the switch is correctly positioned and can be switched on and off
39. Clip 2 Body clips in to the slots at either side of the bottom body (for easy insertion clip one side of the clips at a time)
40. Plug the 9V battery in to the Battery connector
41. Slot the battery in its place (ensure the cables are facing towards the right side of the body)
42. Slot the Buzzer in to its slot in the bottom body
43. Slot the OLED in to its slot in the bottom body
44. Stick a bit of blue tac on the bottom of the Bluetooth, Sound and Magnetometer sensor
45. Slot and secure the Bluetooth in to its slot in the bottom body
46. Slot and secure the Sound sensor in to its slot in the bottom body
47. Slot and secure the Magnetometer in to its slot in the bottom body

Step 9: Attaching the Middle body to the bottom body:

48. Take note of the orientation of the Middle body
49. Thread the left foot servo cable through the front left hole of the middle body
50. Thread the left ankle servo cable through the back left hole of the middle body
51. Thread the right foot servo cable through the front right hole of the middle body
52. Thread the right ankle servo cable through the back right hole of the middle body
53. Thread the Bluetooth cables through the back left hole of the middle body
54. Thread the Magnetometer cables through the back right hole of the middle body
55. Thread the OLED, Sound sensor and Battery cables through the front right hole of the middle body
56. Thread the buzzer cables through the front left hole of the middle body
57. Clip the left side of the middle body over the left side body clip attached to the bottom body
58. Clip the right side of the middle body over the right side body clip attached to the bottom body

Step 10: Assembling the Head:

59. Slot one of the 3 remaining 180 degree servos in to its slot in the bottom head
60. Secure the 180 degree servo in place with 2 long screws
61. Thread the 180 degree servo cable through the hole in the bottom of the bottom head
62. Thread the Ultrasonic cables through the hole in the bottom of the bottom head
63. Place the Ultrasonic sensor in its slot in the bottom head
64. Clip 2 head clips in to the Slots at either side of the top head (for easy insertion clip one side of the clips at a time)
65. Clip the left side of the top head in to the left side slot of the bottom head
66. Clip the right side of the top head in to the right side slot of the bottom head

Step 11: Homing the head servo to its home position:

67. Plug the Head Servo cable in to the nano shield as depicted in the wiring diagram
68. Plug the Nano shield in to a computer or 5V charging block via the mini usb cable
69. Wait a few seconds you should hear the servo move to it's home position
70. After the Head servo has homed itself unplug the usb cable from the computer or 5V charging block
71. Unplug the Head servo cable from the servo shield

WARNING IT IS IMPORTANT NOT TO MANUALLY MOVE THE HEAD SERVOS POSITION FOR THE NEXT STEP OR YOU WILL HAVE TO COME BACK TO THIS STEP IF THE HEAD HAS DEVIATED FROM IT'S HOME POSITION

Step 12: Attaching the head to the top body:

72. Thread the Head 180 degree servo cable through the slot in the top of the top body
73. Thread the Ultrasonic cables through the slot in the top of the top body
74. Position a Single servo horn in the slot on the inside of the top body
75. Hold the servo horn in place and attach the head to the servo horn from the other side the head must be facing forwards whilst being attached to the servo horn.
76. Secure the servo horn in place with 1 small screw

Step 13: Assembling the left arm servos to the top body:

77. Slot one of the 2 remaining 180 degree servos in to the left body servo clip
78. Secure the 180 degree servo in place with 2 long screws
79. Clip the left body servo clip in to the left side of the top body

Step 14: Assembling the right arm servos to the top body:

80. Slot the remaining 180 degree servo in to the right body servo clip
81. Secure the 180 degree servo in place with 2 long screws
82. Clip the right body servo clip in to the right side of the top body

Step 15: Assembling the touch sensor to the touch sensor plate:

83. Slot the touch sensor through the hole in the button plate (the touch sensor must be placed the right way round)
84. Secure the touch sensor in place with the touch sensor clip

Step 16: Connecting the Servos to the Nano shield:

85. Place the Nano shield loosely in to the middle body
86. Make sure the cables sticking out of the middle body are not trapped underneath the Nano shield
87. Connect the left foot servo cable to the nano shield pins as described in the wiring diagram (the left foot servo cable is sticking out of the front left hole in the middle body)
88. Connect the left ankle servo cable to the nano shield pins as described in the wiring diagram (the left ankle servo cable is sticking out of the back left hole in the middle body)
89. Connect the left arm servo cable to the nano shield pins as described in the wiring diagram
90. Connect the Head servo cable to the nano shield pins as described in the wiring diagram

91. Connect the right foot servo cable to the nano shield pins as described in the wiring diagram (the right foot servo cable is sticking out of the front right hole in the middle body)

92. Connect the right ankle servo cable to the nano shield pins as described in the wiring diagram (the right ankle servo cable is sticking out of the back right hole in the middle body)
93. Connect the right arm servo cable to the nano shield pins as described in the wiring diagram

Step 17: Connecting the sensors to the Nano shield:

94. Connect the touch sensor cables to the nano shield pins as described in the wiring diagram
95. Connect the buzzer cables to the nano shield pins as described in the wiring diagram (the buzzer cables are sticking out of the front left hole in the middle body)
96. Connect the ultrasonic cables to the nano shield pins as described in the wiring diagram
97. Connect the Bluetooth cables to the nano shield pins as described in the wiring diagram (the Bluetooth cables are sticking out of the back left hole in the middle body)
98. Connect the sound sensor cables to the nano shield pins as described in the wiring diagram (the sound sensor cables are sticking out of the front right hole in the middle body)
99. Connect the Magnetometer cables to the nano shield pins as described in the wiring diagram (the Magnetometer cables are sticking out of the back right hole in the middle body)
100. Connect the OLED cables to the nano shield pins as described in the wiring diagram (the OLED cables are sticking out of the front right hole in the middle body)

Step 18: Attaching the upper body to the lower body:

101. Slide the touch sensor plate in to it's slot in the middle body
102. Place the upper body on top of the middle body
103. Make sure no cables are sticking out in between the top and middle body
104. Clip the left side of the middle body in the left side body servo clip attached to the top body
105. Clip the right side of the middle body in the right side body servo clip attached to the bottom body

Step 19: Homing the ankle and arm servos to there home positions

106. Switch the robot on
107. Wait 5 seconds the Arm and ankle servos should move to there home position
108. Switch the robot off

Step 20 Attaching the left arm:

109. Place a Dual servo horn in to the slot of one of the shoulders
110. Take note of the orientation of the shoulder up and down
111. Attach the shoulder and servo horn to the left arm servo shoulder facing downwards
112. Secure the shoulder in place with 1 small screw
113. Insert one of the arm pins in to the slot in one of the arms
114. Clip the Arm on to the shoulder

Step 21: Attaching the Right arm:

115. Place a Dual servo horn in to the slot of one of the shoulders
116. Take note of the orientation of the shoulder up and down
117. Attach the shoulder and servo horn to the Right arm servo shoulder facing downwards
118. Secure the shoulder in place with 1 small screw
119. Insert the remaining arm pin in to the slot of the remaining arm
120. Clip the Arm on to the shoulder