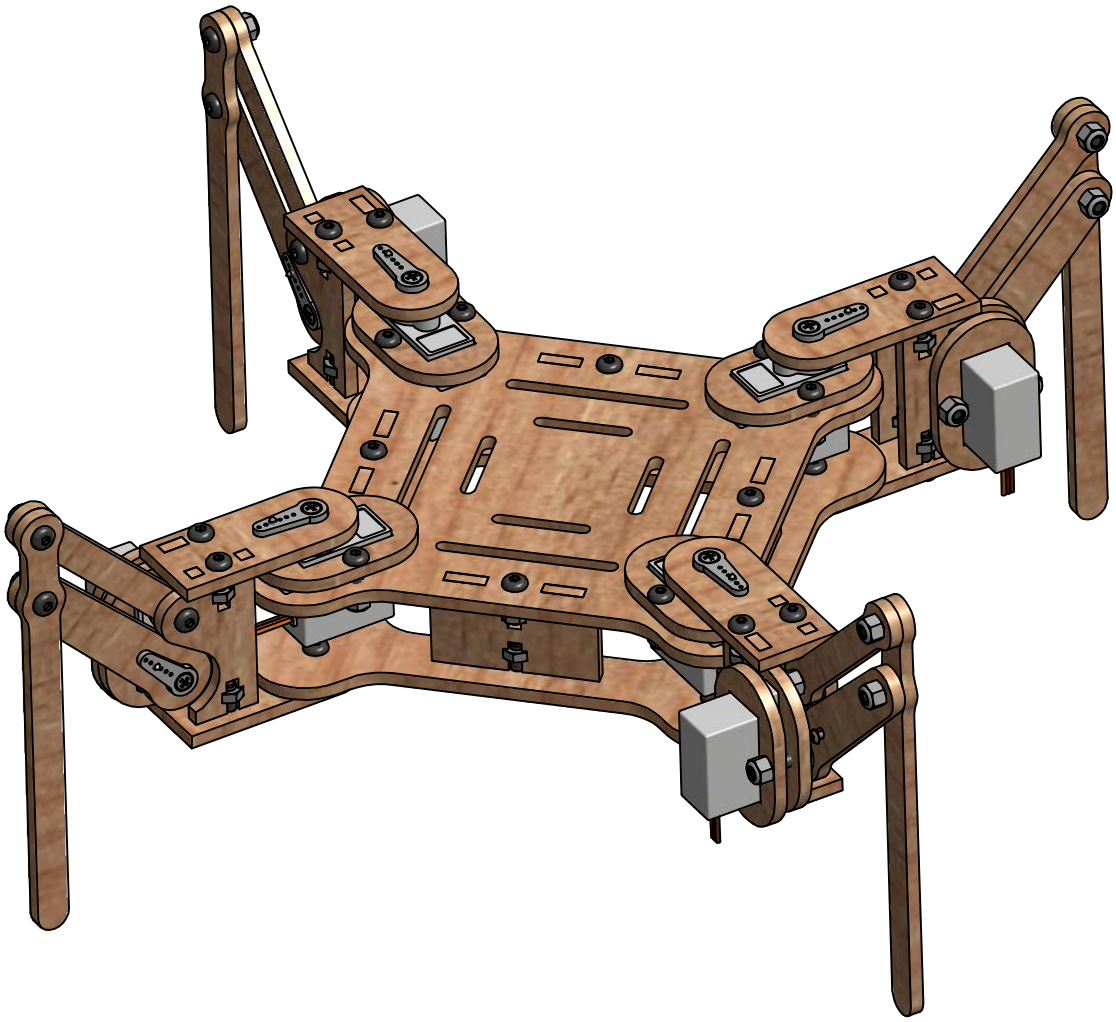
mePed Assembly Manual



The mePed is a small, open source, quadruped robot designed by Scott Pierce of Spierce Technologies, LLC.
This design is released under the Creative Commons, By Attribution, Share Alike License.
Please keep open source projects going for everyone!
Hardware source files can be found at: www.thingiverse.com/thing:756681

Additional information, wiring schematics, and sample programs can be found at the official website of the mePed:
www.spiercetech.com/shop/content/8-meped

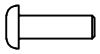
Fasteners:

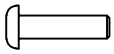
Here is a list of fasteners required to build the mePed. The profiles below are actual size.

Note: The Servo Screws and Servo Mount Screws referenced in this assembly manual are included with the servos and do not need to be purchased seperately.

32ea - M3 Nyloc Nut 

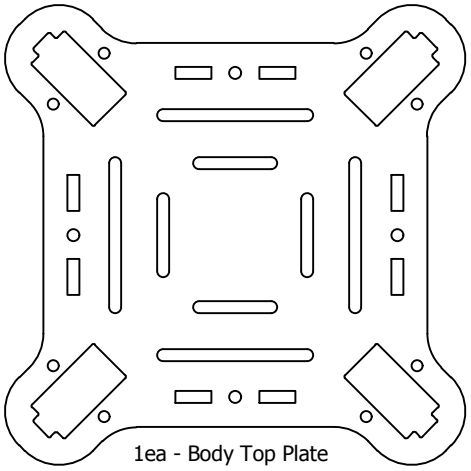
24ea - M3 Nut 

40ea - M3 x 10mm 

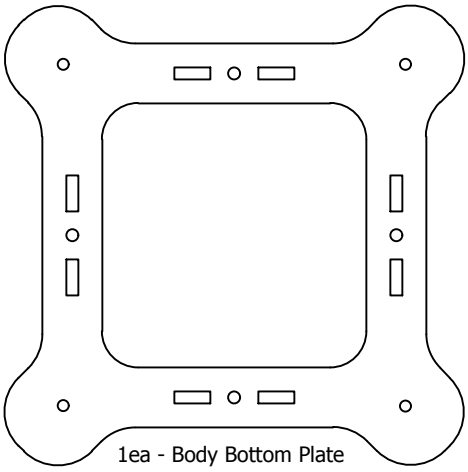
16ea - M3 x 12mm 

Wood Parts:

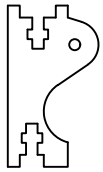
Before laser cutting the mePed, the wood was covered with a protective masking tape to prevent the wood from becoming smoke damaged. You will need to peel the masking tape off each part before assembling the mePed. If there is a little bit of smoke damage anywhere on the wood after peeling off the masking tape, a light sanding will quickly remove it.



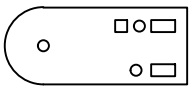
1ea - Body Top Plate



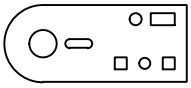
1ea - Body Bottom Plate



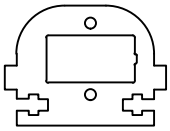
4ea - Leg Parallel Plate



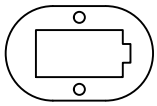
4ea - Leg Bottom Pivot Plate



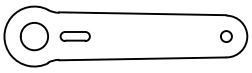
4ea - Leg Top Pivot Plate



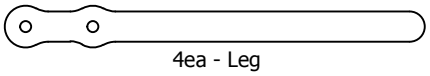
4ea - Leg Servo Mount



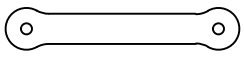
8ea - Servo Retainer



4ea - Leg Servo Arm

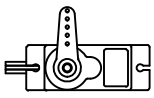


4ea - Leg



4ea - Leg Parallel Joint

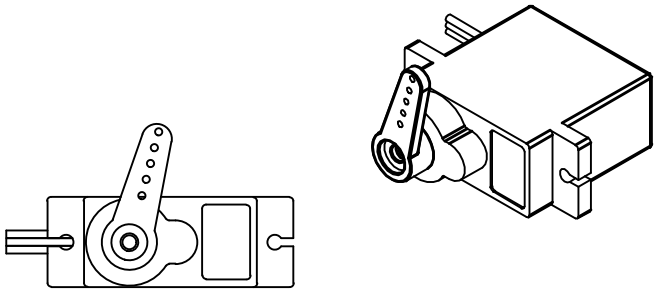
Servos:



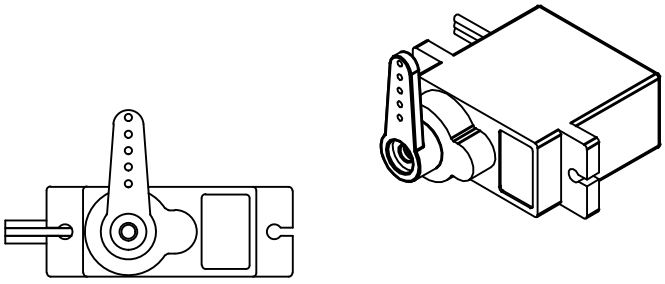
8ea - Servo

Setting Servo Center Position

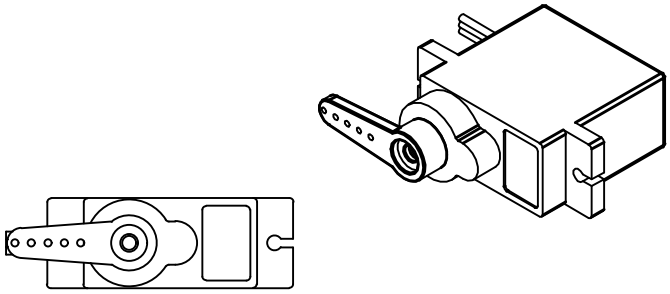
Before starting to assemble your new mePed Walking Robot, it is important to center all 8 servos that came with the kit. The following steps will help ensure all of the servos are rotated to their center or 90° position.



Attach a Servo Arm to the servo and then gently rotate the Servo Arm clockwise until the arm stops. It is okay if the Servo Arm does not stop at the same angle show in the illustration above. What is important is that we find the end stop of the Servo.



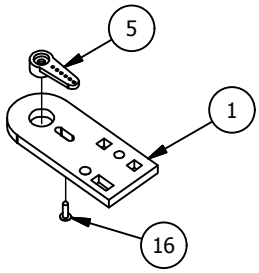
Remove the Servo Arm from the Servo and reposition it to be perpendicular to the Servo body as shown in this illustration.

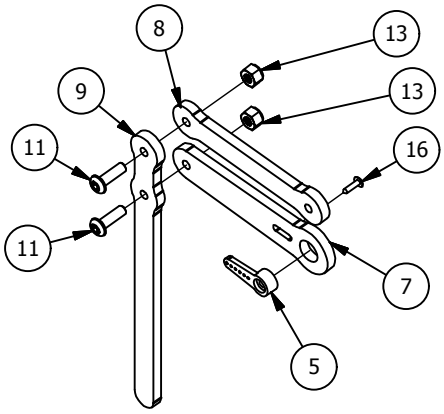


Gently rotate the Servo Arm counter-clockwise until the Servo Arm is parallel with the Servo body as shown. This is the Servo's center position and it is important that all 8 Servos included in the kit are centered before starting the mePed assembly.
After the Servo Arm is parallel with the Servo Body, remove the Servo Arm and set it aside for later assembly.

Leg Assembly

Repeat Steps 1-9 four times.





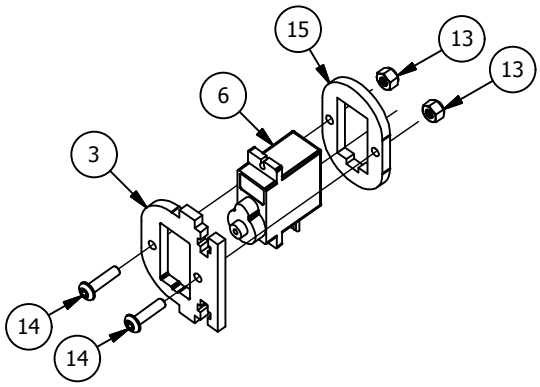
PARTS LIST	
ITEM	PART NUMBER
1	Leg Top Pivot Plate
2	Leg Bottom Pivot Plate
3	Leg Servo Mount
4	Servo Screw
5	Servo Single Arm
6	Servo
7	Leg Servo Arm
8	Leg Parallel Linkage
9	Leg
10	Leg Parallel Plate
11	M3 x 10mm Screw
12	M3 Plain Nut
13	M3 Nyloc Nut
14	M3 x 12mm Screw
15	Servo Retainer
16	Servo Mount Screw

Step 1: Insert a Servo Single Arm into a Leg Top Pivot Plate and thread a Servo Mount Screw into the Servo Single Arm from the back side of the Leg Top Pivot Plate.

Step 2: Insert a Servo Single Arm into a Leg Servo Arm and thread a Servo Mount Screw into the Servo Single Arm from the back side of the Leg Servo Arm.

Step 3: Attach one Leg Parallel Linkage to a Leg piece using an M3 x 10mm Screw and an M3 Nyloc Nut.

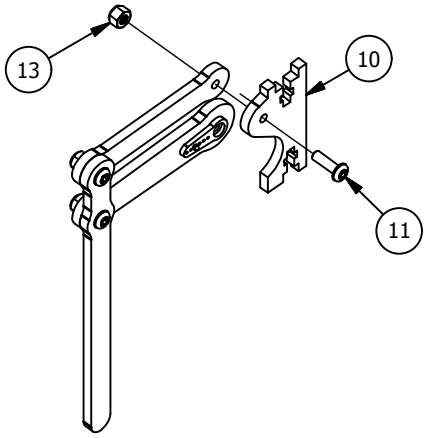
Step 4: Attach the Leg piece to a Leg Servo Arm using an M3 x 10mm Screw and an M3 Nyloc Nut.
IMPORTANT! Do not over tighten the screws in Steps 2 and 3. The Leg joints should move freely to prevent excess friction which could cause the servos to fail.



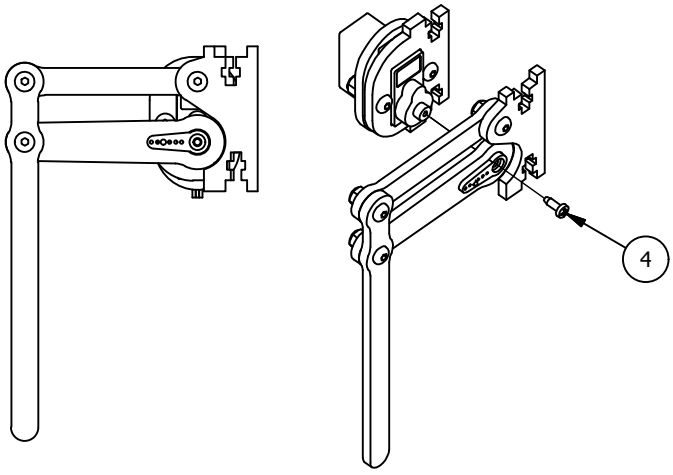
Step 5: Insert a Servo into a Servo Retainer.

Step 6: Insert the top end of the Servo into the Leg Servo Mount.

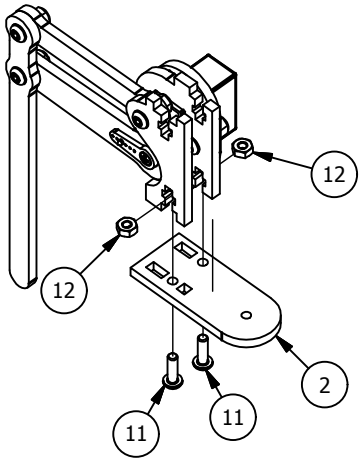
Step 7: Attach the Servo Retainer to the Leg Servo Mount using two M3 x 12mm Screws and two M3 Nyloc Nuts.



Step 8: Attach a Leg Parallel Plate to the other end of the Leg Parallel Linkage using an M3 x 10mm Screw and an M3 Nyloc Nut. Do not over tighten this screw. The leg joints should move freely to prevent excess friction which could cause the servos to fail.

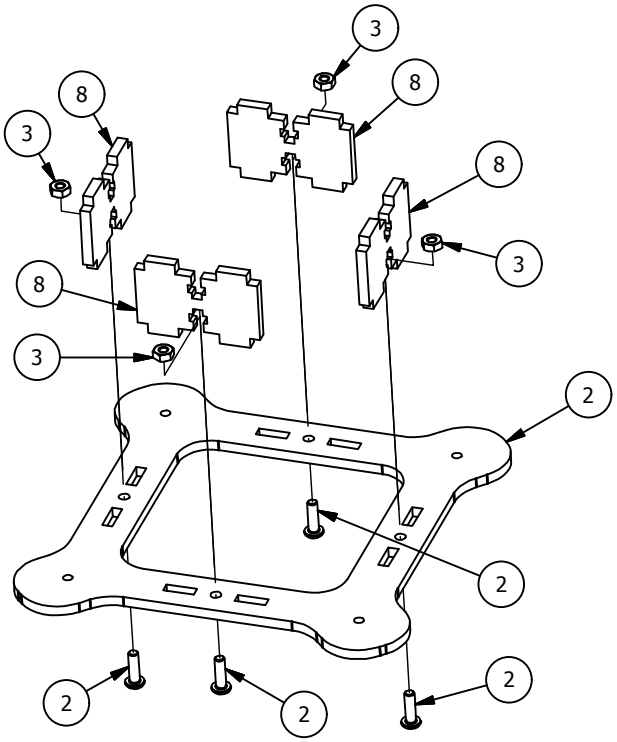


Step 9: With the Servo rotated to center position and the leg positioned so the Parallel Linkage is horizontal, attach the Leg Servo Arm to the Servo using the Servo Arm Screw supplied with the Servo.



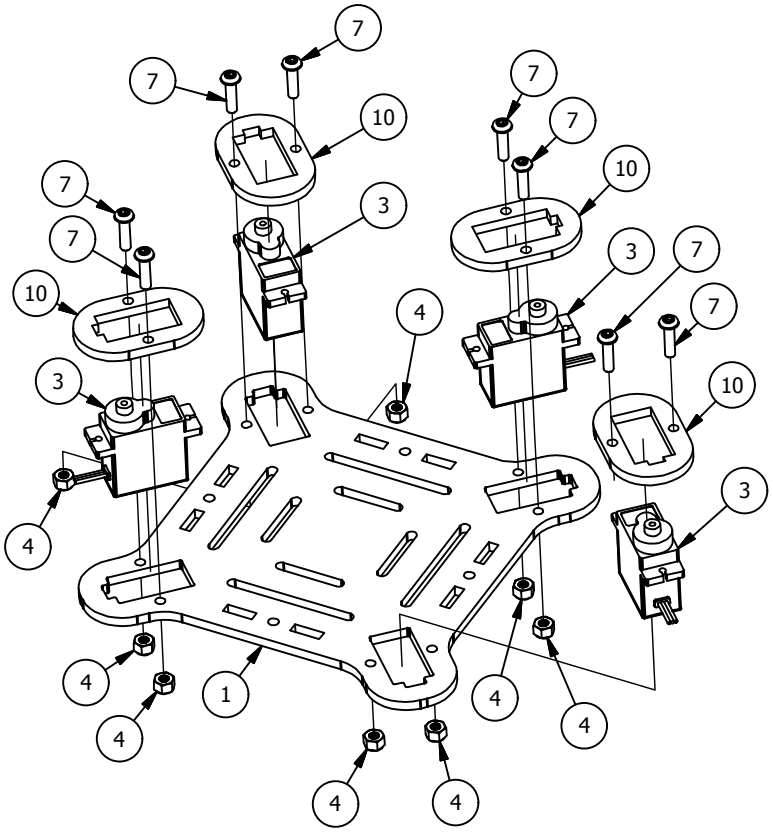
Step 10: Attach the Leg Assembly from the previous steps to a Leg Bottom Pivot Plate using two M3 x 10mm Screws and two M3 Plain Nuts.

Body Assembly



PARTS LIST	
ITEM	PART NUMBER
1	Body Top Plate
1	Servo Screw
3	9 Gram Servo
2	M3 x 10mm Screw
3	M3 Plain Nut
4	M3 Nyloc Nut
7	M3 x 12mm Screw
8	Body Spacer
9	Leg Servo Mount
10	Servo Retainer

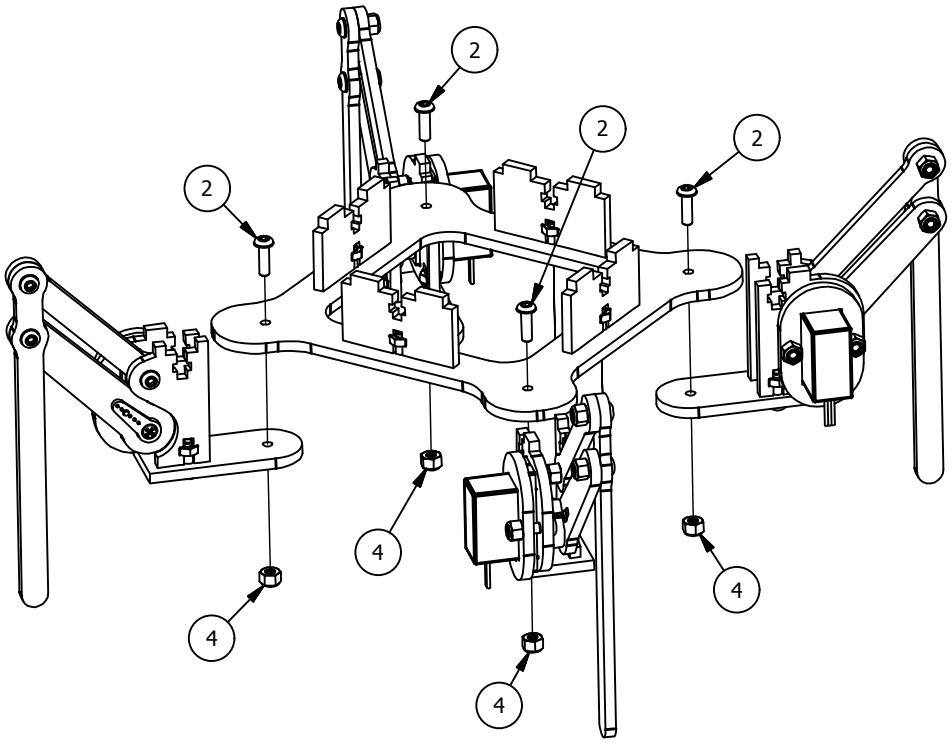
Step 11: Attach four Body Spacers to the Body Bottom Plate using four M3 x 10mm Screws and four M3 Plain Nuts.



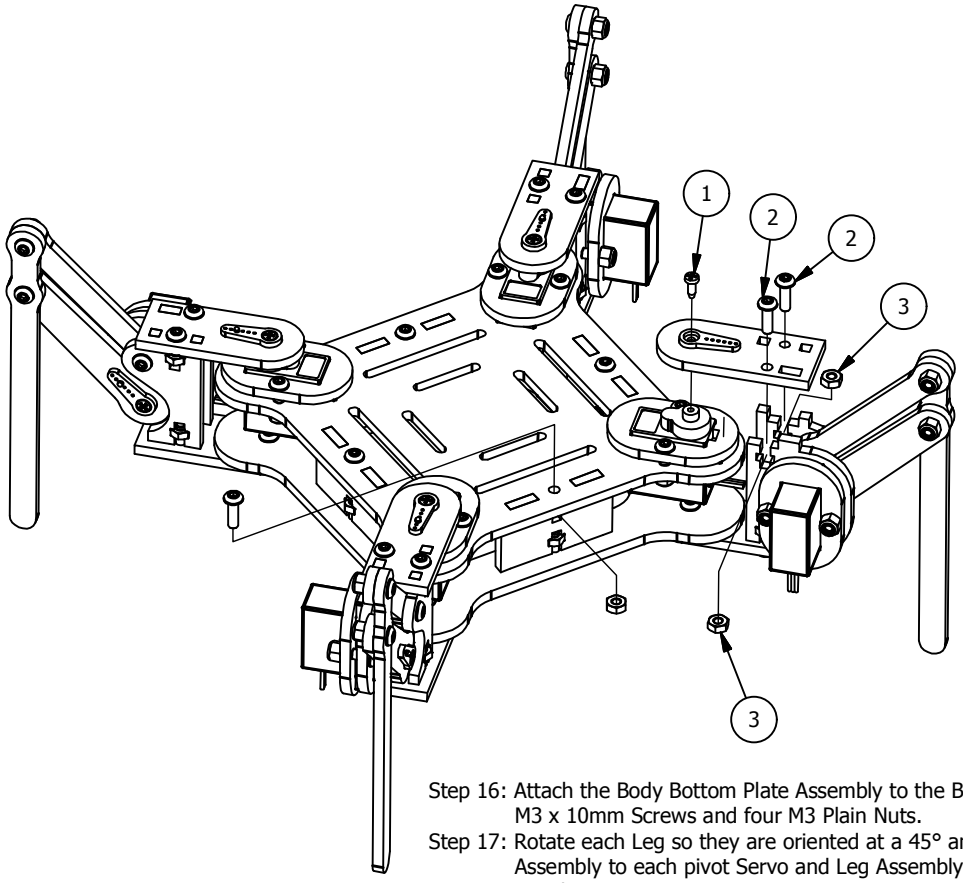
Step 12: Insert four Servos into the top side of the Body Top Plate.
Step 13: Slide a Servo Retainer onto the top of each Servo.
Step 14: Attach each Servo Retainer to the Body Top Plate using M3 x 12mm Screws and M3 Nyloc Nuts.

Final Assembly

PARTS LIST	
ITEM	PART NUMBER
1	Servo Screw
2	M3 x 10mm Screw
3	M3 Plain Nut
4	M3 Nyloc Nut



Step 15: Attach each Leg Assembly to the Body Bottom Plate Assembly using an M3 x 10mm Screw and an M3 Nyloc Nut. Do not over tighten these screws. The leg joints should move freely to prevent excess friction which could cause the servos to fail.



Step 16: Attach the Body Bottom Plate Assembly to the Body Top Plate Assembly using four M3 x 10mm Screws and four M3 Plain Nuts.

Step 17: Rotate each Leg so they are oriented at a 45° angle as shown. Attach a Leg Top Pivot Plate Assembly to each pivot Servo and Leg Assembly using two M3 x 10mm Screws and two M3 Plain Nuts.

Step 18: Secure the Servo Single Arm to the Servo using a Servo Screw.