

VERSION [0.0.1]

Modified: 2018/2/25



UTHAI-HUMANOID ASSEMBLY MANUAL

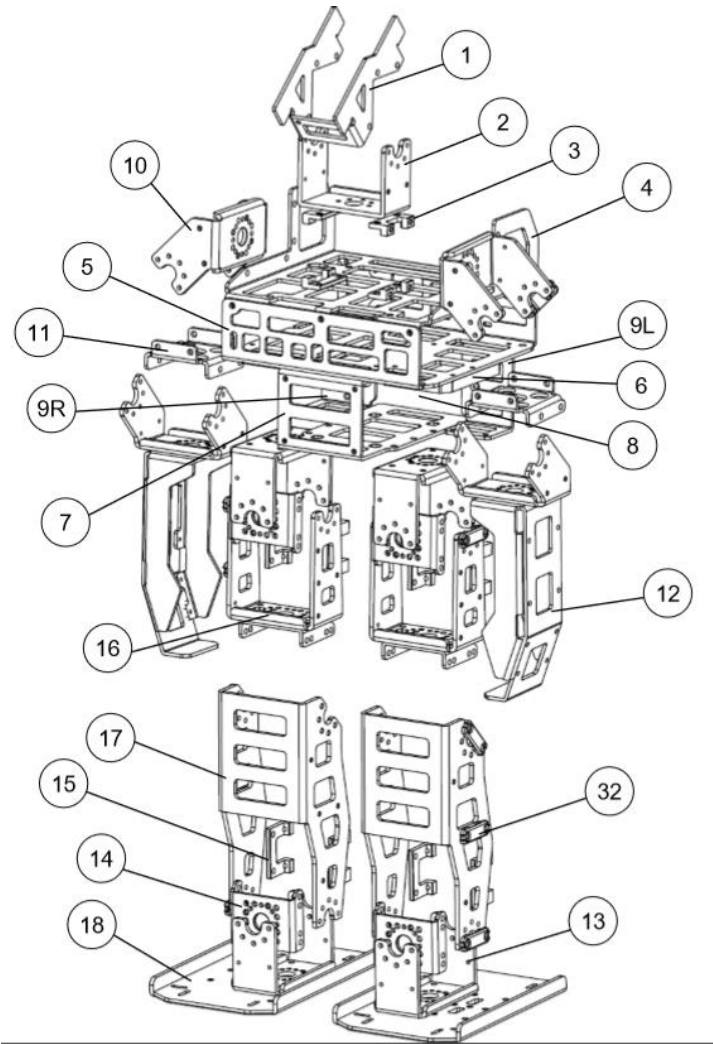
PRINCIPLE AUTHORS:

TAA

BIRD

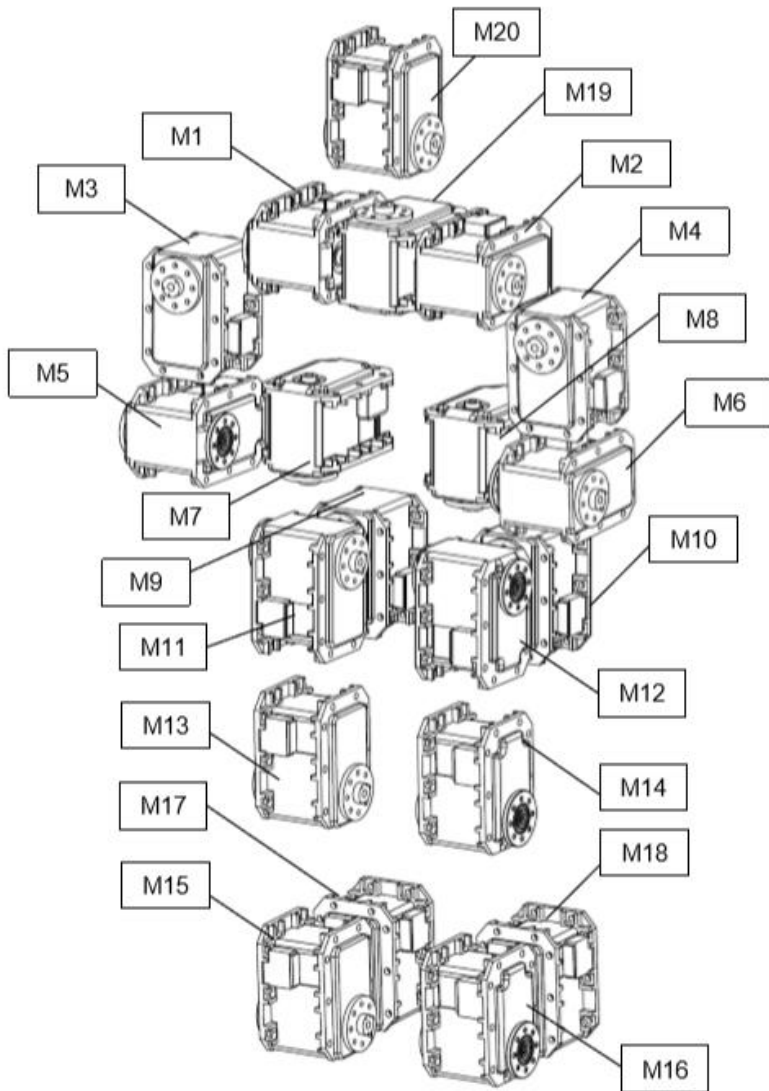
LIEWS

PARTS LIST 1 - FRAME



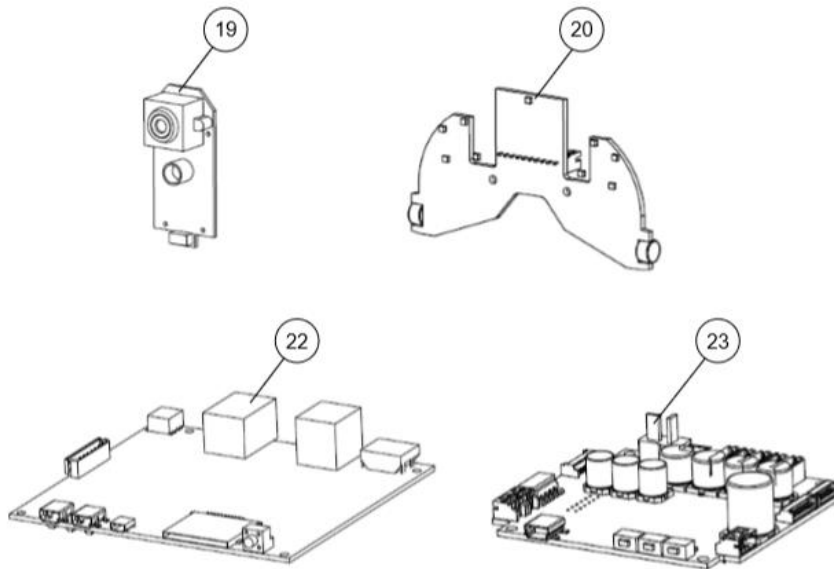
Part Number	Description	Part Name	Qty.
1	Batter Bracket	UH_00192	1
18	Foot	UH_R_F	2
2	Thigh Bracket	UH_R_TH	2
3	Knee Bracket	UH_R_KN	2
18	Foot	UH_R_F	2
1	Batter Bracket	UH_00192	1
18	Foot	UH_R_F	2
2	Thigh Bracket	UH_R_TH	2
3	Knee Bracket	UH_R_KN	2
18	Foot	UH_R_F	2
3	Knee Bracket	UH_R_KN	2
18	Foot	UH_R_F	2
3	Knee Bracket	UH_R_KN	2
18	Foot	UH_R_F	2

PARTS LIST 2 – ACTUATORS



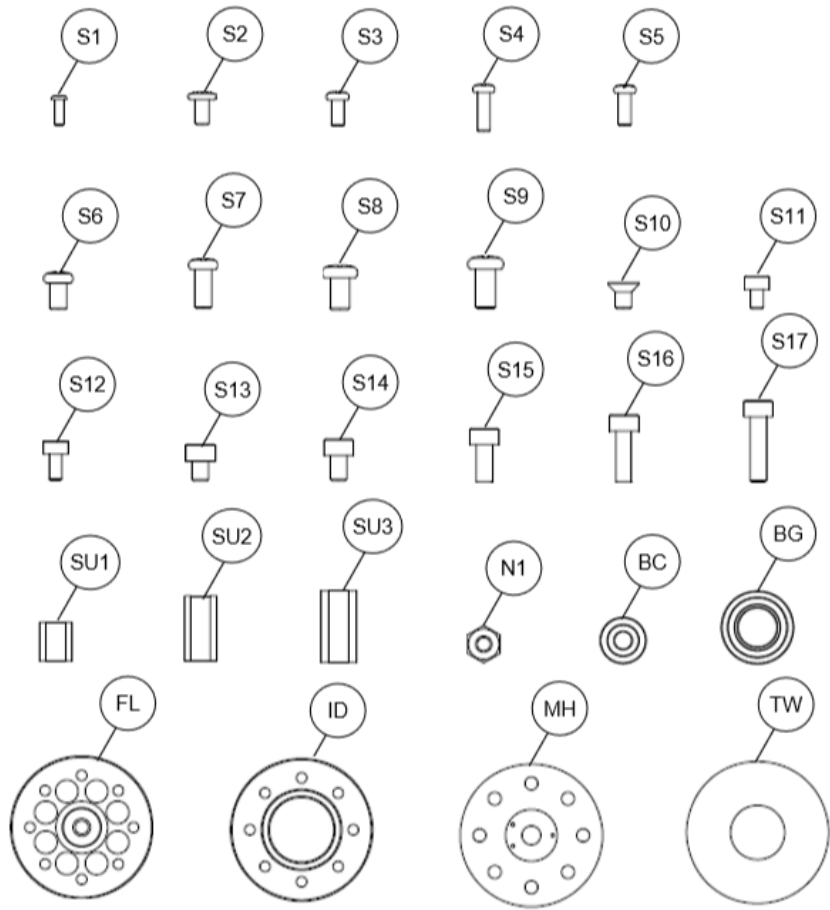
ID	Name	Actuator Type	Bearing Required
M1	R_hip_yaw	Dynamixel EX-106+	No
M2	R_hip_roll	Dynamixel EX-106+	No
M3	R_hip_pitch	Dynamixel EX-106+	No
M4	R_knee_pitch	Dynamixel EX-106+	No
M5	R_ankle_pitch	Dynamixel EX-106+	No
M6	R_ankle_roll	Dynamixel EX-106+	No
M11	L_hip_yaw	Dynamixel EX-106+	No
M12	L_hip_roll	Dynamixel EX-106+	No
M13	L_hip_pitch	Dynamixel EX-106+	No
M14	L_knee_pitch	Dynamixel EX-106+	No
M15	L_ankle_pitch	Dynamixel EX-106+	No
M16	L_ankle_roll	Dynamixel EX-106+	No
M21			
M22			
M31			
M32			

PARTS LIST 3 – ELECTRONICS



Part Number	Description	Qty.
22	Nucleo F411RE	1
23	Dynamixel Shield	1
24	Odroid XU4	1
25	Battery	1
26	Speaker	1
27	Power Switch	1

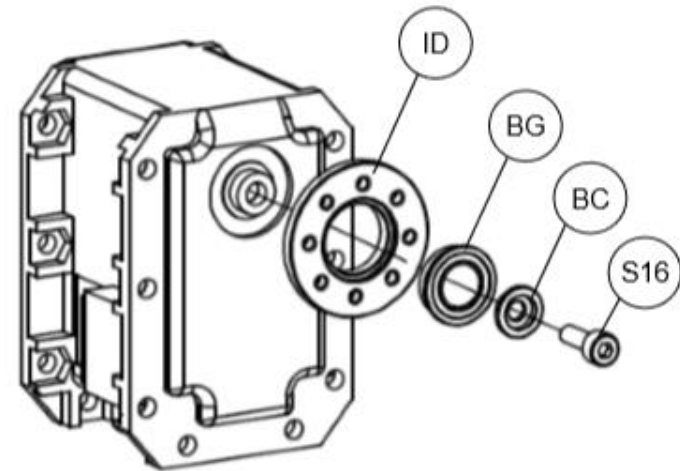
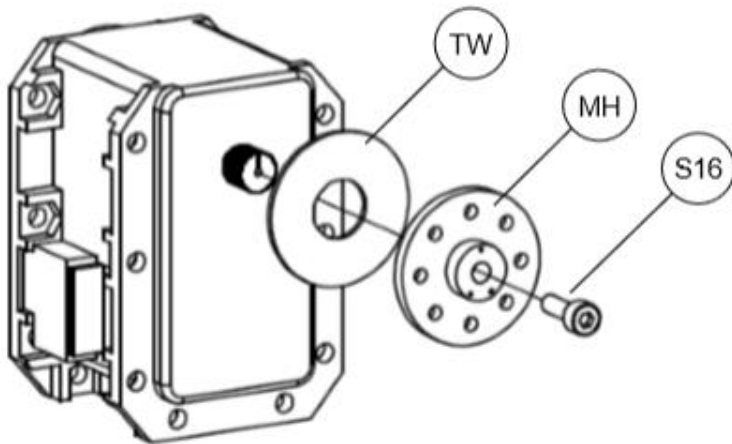
PARTS LIST 4 – FASTENERS



Part Number	Description	Qty.
S1	HEX Head M2.5x10	112
S2	HEX Head M2.5x10	1
S3	HEX Head M2.5x10	1
S4	HEX Head M2.5x10	1
S5	HEX Head M2.5x10	1
S6	HEX Head M2.5x10	1

0 – ACTUATORS

Dynamixel EX-106+ Actuator ID's are recommended to be set prior to assembly.



Horn attachment

All actuators require horn

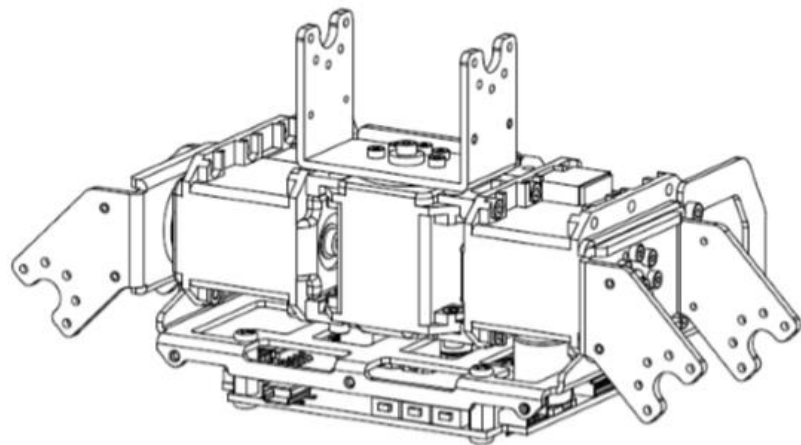
Actuator bearing attachment

M1, M2, M3, M4, M5, ..., do NOT require a bearing

[WARNING]

Horns must align with actuator shaft. Damage to actuators and/or robot may occur if horn is not properly aligned when attached to actuator.

1 – UTHAI CHEST



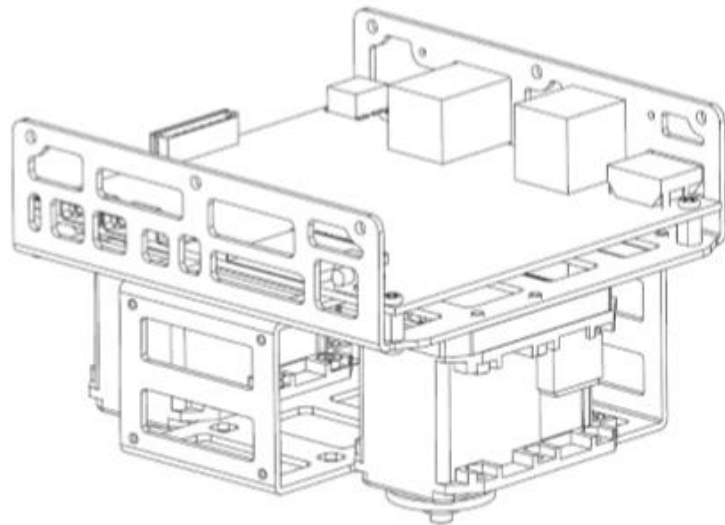
Part Number	Description	Qty.
S1	HEX Head M2.5x10	112
S2	HEX Head M2.5x10	1
S3	HEX Head M2.5x10	1
S4	HEX Head M2.5x10	1
S5	HEX Head M2.5x10	1
S6	HEX Head M2.5x10	1

1.1 UTHAI CHEST -> ACTUATORS ASSEMBLY

1.2 UTHAI CHEST -> ELECTRONICS ASSEMBLY

1.3 UTHAI CHEST -> UNIT ASSEMBLY

2 – UTHAI PELVIS

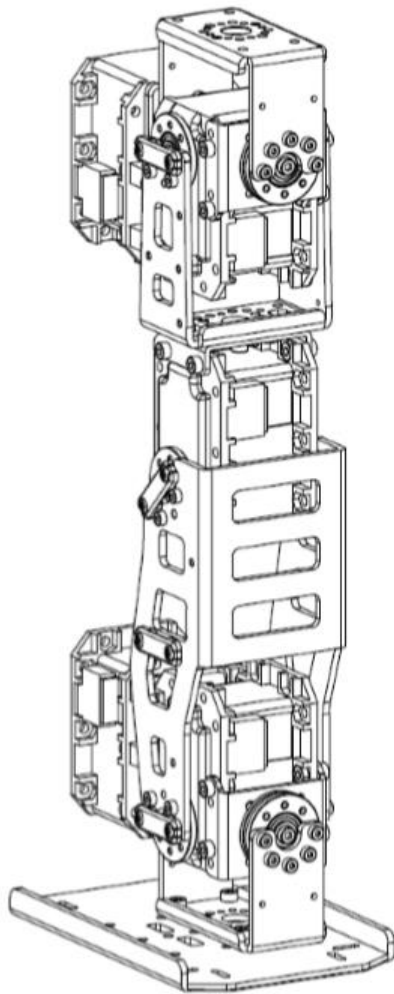


Part Number	Description	Qty.
S1	HEX Head M2.5x10	112
S2	HEX Head M2.5x10	1
S3	HEX Head M2.5x10	1
S4	HEX Head M2.5x10	1
S5	HEX Head M2.5x10	1
S6	HEX Head M2.5x10	1

2.1 UTHAI PELVIS -> ACTUATORS ASSEMBLY

2.2 UTHAI PELVIS -> UNIT ASSEMBLY

3 – UTHAI RIGHT LEG



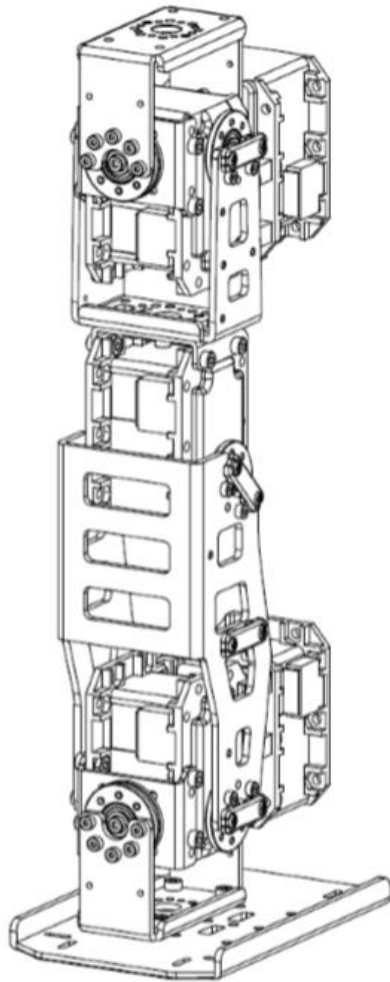
Part Number	Description	Qty.
S1	HEX Head M2.5x10	112
S2	HEX Head M2.5x10	1
S3	HEX Head M2.5x10	1
S4	HEX Head M2.5x10	1
S5	HEX Head M2.5x10	1
S6	HEX Head M2.5x10	1

3.1 UTHAI RIGHT LEG -> LOWER LEG

3.2 UTHAI RIGHT LEG -> UPPER LEG

3.3 UTHAI RIGHT LEG -> UNIT ASSEMBLY

4 – UTHAI LEFT LEG



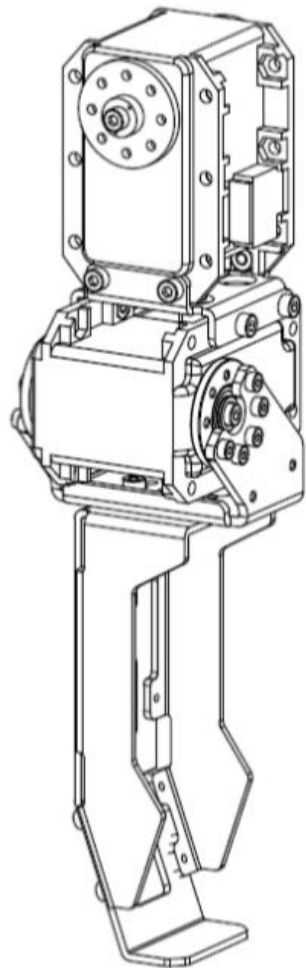
Part Number	Description	Qty.
S1	HEX Head M2.5x10	112
S2	HEX Head M2.5x10	1
S3	HEX Head M2.5x10	1
S4	HEX Head M2.5x10	1
S5	HEX Head M2.5x10	1
S6	HEX Head M2.5x10	1

4.1 UTHAI LEFT LEG -> LOWER LEG

4.2 UTHAI LEFT LEG -> UPPER LEG

4.3 UTHAI LEFT LEG -> UNIT ASSEMBLY

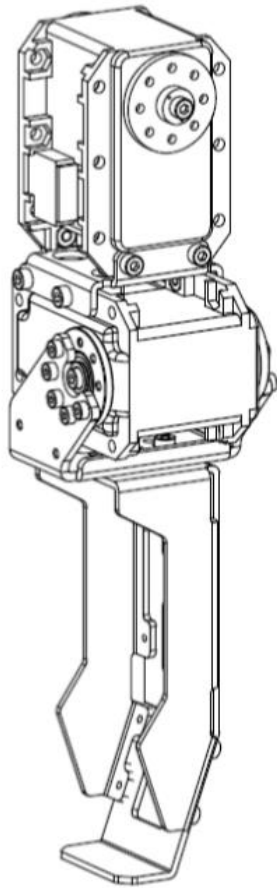
5 – UTHAI RIGHT ARM



Part Number	Description	Qty.
S1	HEX Head M2.5x10	112
S2	HEX Head M2.5x10	1
S3	HEX Head M2.5x10	1
S4	HEX Head M2.5x10	1
S5	HEX Head M2.5x10	1
S6	HEX Head M2.5x10	1

5.1 UTHAI RIGHT ARM -> UNIT ASSEMBLY

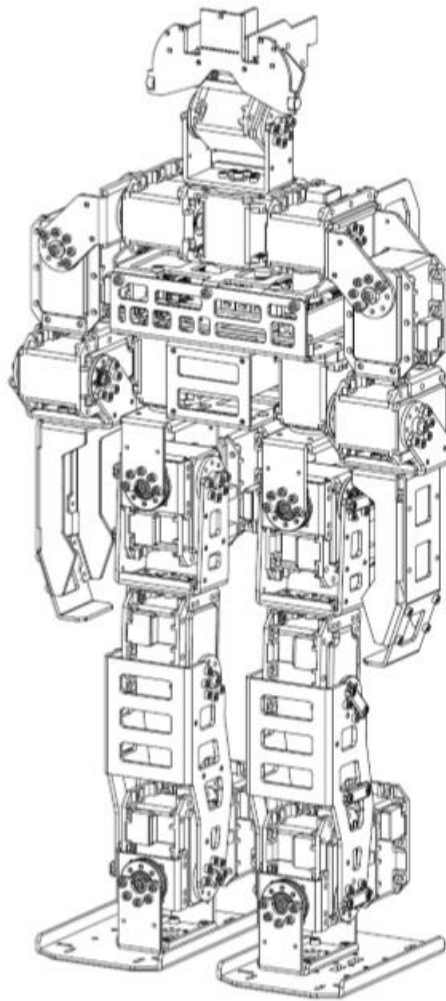
6 – UTHAI LEFT ARM



Part Number	Description	Qty.
S1	HEX Head M2.5x10	112
S2	HEX Head M2.5x10	1
S3	HEX Head M2.5x10	1
S4	HEX Head M2.5x10	1
S5	HEX Head M2.5x10	1
S6	HEX Head M2.5x10	1

6.1 UTHAI LEFT ARM -> UNIT ASSEMBLY

7 – UTHAI FULL ASSEMBLY



Part Number	Description	Qty.
S1	HEX Head M2.5x10	112
S2	HEX Head M2.5x10	1
S3	HEX Head M2.5x10	1
S4	HEX Head M2.5x10	1
S5	HEX Head M2.5x10	1
S6	HEX Head M2.5x10	1

7.1 UTHAI FULL ASSEMBLY -> CHEST ASSEMBLY

7.2 UTHAI FULL ASSEMBLY -> PELVIS ASSEMBLY

7.3 UTHAI FULL ASSEMBLY -> ARMS ASSEMBLY

7.4 UTHAI FULL ASSEMBLY -> LEGS ASSEMBLY

The logo consists of the word "UTHAI" in a large, white, serif font, positioned above the word "HUMANOID" in a smaller, white, sans-serif font. Both words are centered within a solid orange square.

UTHAI

HUMANOID