**Maryam Alabdulhadi – Weiam Abed “Collaborated Work”**

**3’rd Main Task in Mechanical department.**

**Build and design a Competition robot on Cinema 4D:**

**Morphological analysis**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Main elements** | **Sections** | | | |
| **Number of Wheels** | 1 | 2 | 3 | 4 |
| **Type of Wheels** | Standard/Fixed wheel | Ball wheel | Omni wheels | Tank wheels  “Belt wheels” |
| **Type of motor** | DC | Stepper | Servo | Brushless |
| **Number of arms** | 1 | 2 | 3 | 4 |
| **Base Material** | Wooden | Plastic | Aluminum | glass |
| **Shape of motor box** | Half Circle | Rectangle | Pyramids | Square Cube |
| **Type of weapon** | Long Needle | Knife | Laser | Nail Thrower |
| **Position of the motor box** | Below | Above | In the middle | On the edge |

**Our choices are the following:**

**Number of Wheels:** 4

**Type of Wheels:** Standard/Fixed wheel

**Type of motor:** Brushless

**Number of arms:** 1

**Base Material:** Wood

**Shape of motor box:** Rectangle

**Type of weapon:** Knife

**Position of the motor box:** Below, In the middle

**Reason:**

For a starting point, the main reason of choosing 4 wheels is that we think that is the most capable choice when it comes to fighting robots and rough environment to help it stand still, then for the type of wheels it will be the standard type since it does the job, cheap and accessible to us. For the motor, we will be applying Brushless motor because it has significantly higher efficiency and performance which is what we need for this type of robots. In addition, we will be applying one arm since it is enough for holding the weapon, we chose which is the knife. Now talking about the base, it will be a wooden base rectangle shaped including a motor box below it in the middle so the arm can move more freely which will affect our robot performance positively.