**Motor Sizing:**

**Foam Sheet:**

Length = 0.27 m

Width = 0.2 m

Thickness = 0.008 m

Density = 62 kg/m3

Volume = Length x Width x Thickness

= 0.27 x 0.2 x 0.008

= 0.000432 m3

Mass = Density x Volume

= 62 x 0.000432

= 0.026784 kg

**Motor Clamp:**

Weight = 0.024 kg

Quantity = 4

Total weight = 0.024 x 4 = 0.096 kg

**Nuts and Bolts:**

Quantity = 10

Weight = 0.003 kg

Total weight = 0.003 x 10 = 0.03 kg

**Wheels:**

Quantity = 4

Weight = 0.15 kg

Total weight = 0.15 x 4 = 0.6 kg

Total weight of chassis = 0.026784 + 0.096 + 0.03 + 0.6 = 0.752784 kg ≈ 753 g

Coefficient of Friction (µ) = 0.6

F = µmg

F = 0.6 x 0.753 x 9.81

F = 4.432 N

τ = Fr

τ = 4.432 x 3.5

τ = 0.15512 N m

Considering Factor of Safety (FoS) = 1.5,

τ = 0.15512 x 1.5

τ = 0.232 N m

τ = 2.3657 kg cm

Since the torque is distributed among two DC Motors,

τeach = = 1.18 kg cm

So, two DC Geared Motors of 200 RPM each is selected.

**Battery/Adapter Sizing:**

For 1 DC Motor: 12 V adapter and 300 mA current

For 2 DC Motors: 2 x 300 mA = 600 mA

Considering Factor of Safety (FoS) = 1.2,

Total Current = 1.2 x 600

= 720 mA current and 12 V adapter

= 0.72 A current and 12 V adapter

So, a 12 V adapter with a current rating of 1 A is selected.