	Meight -) 0.65m / Solar
	Midth 72m Solar Classmite Date Page
	Page
	Mechatronics Calculations
	(8 = 0.075m)
1	Tyre Diameter -) 15cm $(8 = 0.075m)$ Circumference -) 278 = $0.47m$
	Desired speed -> [locm/s] or 0.1 m/s
	RPM = 05 X60 = 63.6 RPM 6.47
	RM [RPM ≈ 64 RPM] O1 13 RPM V=0.5 m/s (Per motor) Power Required [RPM = 12.73 RPM] ($V=0.1$ m/s)
	OF TOTAL OF TOTAL OF TOTAL OF THE PARTY OF T
	Power Par isad [Paris to x 2 per) (V= 0.10m/4)
	2 1 1 1 2 1 1 1 2 1 1 1 2 2 1 1 1 1 2 2 1 1 1 1 2
	Assuming weight of Solar Panel = 10kg
	we the same of the
	(friction coefficient) = 0.3
	. Harris
	Normal Foru = mxg = 10x 9.81 = 98.1N
	J mg
	Rolling Resistand = 0.3 x 98.1 = 29.43 N
	Rolling Resistance = 0.3 x 98.1 = 29.43 N Foru (Fr)
14	The second of second of the se
	Torque Required = (29.43) x 0.075 = 0.5518 Nm
	(4)
	1
	Per motor

locals speed

	to	
	Date	_
5	Page	

A-0 1	velocity ((w)	= 0.1	96	1.33 rad/s
Arguar		0.075	0.075		

Power = 0.5518 Nm x 1.33 ~ 0.736 W

Rolling Brush

Assuming radius = 15 cm

Assuming man = 4kg

 $I = \frac{1}{2}Mr^2 = \frac{1}{2}4(0.075) = \frac{1}{2}0.01125 \text{ kg m}^2$

Moment of Inestia

Assuming Brush Rotates at 60 RPM

W = 27 x60 = 6.28 rad/s
(Angular V) 60

(T= I.d) Torque

> d=W Assuming it should reach 60 RAM in 5 seconds

6.28 = 1.256 Fad /52

T= 0,01125 x 1,256 = 0,014 12 Nm

Do not of Motors > C.W & 0.0887W Per Motor