Power Calculation (to select suitable transformer)

Sensors :

Sensors	Current (A)	Voltage (V)	P = VI (W)
IR x 3	0.02	5	0.02 x 5 x 3 = 0.3
Ultrasonic x 3	0.015	5	0.015 x 5 x3 = 0.225
inductive	0.02	10	0.2 x 10 = 0.2
keypad	0.03	5	0.03 x 5 = 0.15
Lcd	0.0025	5	0.0025 x 5 = 0.0125
Total	0.158		**0.8825 W**

Motors :

Motor	Current (A)	Voltage (V)	P = VI
Stepper x 4	1.5	12	12 x 1.5 x 4 = 72
DC x 3	1.5	12	12 x 1.5 x 3 = 54
Total	3		**126 W**

- If we assume that all the sensors work together, then we need total power of 0.8825W. (approximately 1W) .Since these all the sensors are not working together we need a power less than 1W and we can get maximum power needed for sensors as 1W and it is a very small value when comparing to the motors.

- If we assume that all the 7 motors are working together, then we need 126W power.But according to our machine ,maximum 4 motors are working together at a time. So, we need maximum power of 72W (12 x 1.5 x 4) for motors.
- So, maximum power we need for this machine = 1W + 72W = 73 W
- After assuming that transformer has 20% loss ,

    P = 73 x 120/100

       = 87.6 W

- So we need a transformer which can generate 90W power for this project.