



CARLETON UNIVERSITY ROBOTICS CLUB

CUESEF FUNDING PROPOSAL

put forth by

Carleton University Robotics Club (CURC)

To:

Carleton University Engineering Student Equipment Fund Committee
Dean's Office, Minto CASE
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Date:

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Abstract

Dear CUESEF Committee:

The Carleton University Robotics Club (CURC) aims to bring together students from all disciplines to join in active projects to design, construct, and test robots.

Current projects:

Cansat

CanSat, is an autonomous rocket payload which is to be deployed from a rocket at an altitude, in the range of 914 to 1128 meters. It is an international annual-student-build-launch rocket competition organized by Nasa in Texas, US. In order to achieve our goals we will require funding of approximately \$1210 for electrical team and \$1490 for mechanical team in order to acquire the remaining equipments for this project. **(NOTE: Detailed preliminary budget for Cansat competition in Table 1 and Table 2)**

Quadcopter

FLY4, a four-rotor helicopter designed to stream high quality aerial views of the Carleton University campus. Over the 3 years CURC has been working on existence Quadcopter, this is time to merge first year engineering students with senior students. Due to the fact, current Quadcopter will be updated and added new features. New features will include getting a new Camera and make a image recognition, new wifi connection to connect any hot spot. In order to achieve our goals we will require funding of approximately \$1810 to purchase the remaining hardware components for this project. **(NOTE: Detailed preliminary budget for Quadcopter in Table 3)**

Arduino workshop

Arduino microcontroller has become popular worldwide. It has been used in varieties of electronic project and robotics realms. Therefore, this workshop is aiming at equipping students with knowledge of Arduino programming by allowing them to work on basic electronic project. This budget for this workshops is \$1115. **(NOTE: Detailed preliminary budget for Arduino workshops in Table 4)**

CANSAT Competition

Preliminary budget for CANSAT (Mechanical and Electrical Team)

Table 1: Budget of electrical team

Item #	Part Description	Quantity	Cost	Total Cost
1	Barometer - BMP180	5	\$5.00	\$25.00
2	Microcontroller - MKL04Z32VCL4	10	\$3.00	\$30.00
3	Accel/Gyro - MPU-6500	5	\$15.00	\$75.00
4	xBee	4	\$30.00	\$120.00
5	Magnetometer - AK8963	5	\$10.00	\$50.00
6	PCB Fabrication Service	10	\$20.00	\$200.00
7	Misc passive componets + led	1	\$50.00	\$50.00
8	Electromechanical (e.g motor, switches)	5	\$50.00	\$250.00
9	Breakout boards	1	\$40.00	\$40.00
10	Battery, Lithium -ion	5	\$10.00	\$50.00
11	Bus-Pirate	1	\$40.00	\$40.00
12	Mobius camera	2	\$100.00	\$200.00
13	Mobius camera extension cable	2	\$10.00	\$20.00
14	32GB micro-SD Card	2	\$30.00	\$60.00
Total				\$1,210.00

Table 2: Budget of mechanical team

Category	Model	Quantity	Unit Cost (\$)	Total (\$)
Structural Materials	Silver Steel/Aluminum	1	40	40
Structural Materials	PCB Boards	20	2	40
Tools and Building Materials	Glue	3	10	30
Structural Materials	Vacuum Forming Plastic	1	50	50
Structural Materials	Balsa	5	10	50
Tools and Building Materials	Wood blocks for making molds	4	20	80
Descent System	Plastic Bushings	2	5	10
Structure printing	3D Printer	1	500	500
Descent System	Parachute	2	10	20
Control System	Servo	1	40	40
Energy Absorption	Foam	1	20	20
Testing	Sensors/Measurement	1	200	200
Testing	Clamps	2	30	60
Testing	Tools	1	100	100
Testing	Prototype material	1	250	250
Total				1490

Quadcopter

Table 3: Equipment required and estimated costs for Quadcopter

Part	Quantity	Estimated cost
Sonar	8	\$160
camera	3	\$90
Arduino platform	2	\$300
New microcontroller	3	\$300
Quadronic	5	\$500
New landing unit	8	\$240
Xbee wifi	5	\$220
	Total	\$1810

Arduino workshops

Table 4: Budget for arduino workshops

Item description	Quantity	Total(\$)
Arduino Uno	10	\$ 300
Assorted LEDs	5	\$ 50
Servo Motors	15	\$ 150
Batteries	5	\$ 15
Arduino bot	10	\$ 500
Cable	10	\$100
	Total	\$1115

Total Combined Expenses

Total Expenses for Cansat competition	\$ 2700
Quadcopter	\$ 1810
Arduino workshop	\$ 1115
Total	\$ 5625