Ottabotics is the University of Ottawa's robotics team.

We promote innovation and robotics innovation. We compete in robotics competitions as well as general design competitions.

Our objective is to complete our Recycle Sorter prototype which we demonstrated an incomplete and preliminary design of at our university's design competition.

The Recycle Sorter aims to solve the problem of recycle being wasted if someone puts an non-recycleable in the Recycle and conversely if they put recycle in the trash bin. An organization using the Recycle Sorter would be able to differentiate their plastic bottles, metal cans, compost and trash.

The plastic and metal can be brought to the appropriate facilities because they are the main materials recycle is remade into. Recycle is currently sorted in plants by workers before it can be used to make something new. Such a process produces a waste of resources and the Recycle Sorter aims to solve this problem by sorting items before they enter a sorting facility.

We are excited about the Recycle Sorter because we want to automate the process of sorting recycling which is currently done by hand. The Recycle Sorter will limit the amount of waste before recycle and waste products are picked up to be sorted and also will allow anyone using it statistics on their trash to educate them about how much waste we as a society are producing.

There are a variety of sensors that have to be used to ensure the recycling is sorted properly. We want to implement the Recycle Sorter so that it would be a modular system that can differentiate between metal cans, plastic bottles, trash and possibly compost. Other features would be an LCD screen to and a website capability so that it can be checked if a bin is full and needs to be replaced and show live statistics of how well the organization is using the Sorter.

Less recycle and trash will be mixed together, improving our school's ability to produce recycle ready to be remade into something else. The Recycle Sorter project has implications of being useful to many schools and outside organizations since it improves sustainability right when the user of the recycle deposits it in our sorter.

The statistics of how much trash was being produced before using the Recycle Sorter will educate the community about the importance of re-using materials. Cafeterias and restaurants on campus will be able to use it as well, adding to the reusable recycle on campus. There are plans to make the Recycle Sorter fit on the existing all-in-one bins on campus that include metal can and bottles as well as trash and compost bins. We are also looking to experiment with how much we can power the Recycle Sorter with solar panels. If we can solve the sorting problem at the source, we are cancelling the waste produced from sorting this recycle by hand.

Ottabotics has grown to a group of 70 people working on different projects. Everyone on the club is interesting in innovating for the future as well as making an impact on our school and outside community. We want to redesign our initial idea so it is a light and sustainable development aimed to engage students and increase the amount of recycle being produced at the school.

We will get together the team that made the first prototype and recruit more members to help with the design and draw up a timeline to complete the project. Step one would be that we draw the mechanical aspects with proper measurements using computer software before machining it. We must also complete the testing of sensors so that they work for our purposes as well as program the sorter for all possible situations. We will have meetings with key people at the school to implement the and promote the Recycle Sorter. We would like to participate in the sustainability fair to all students at the school if given the chance to complete our project, as well as display it to recycling plants, show it to children as well as contact the city to demonstrate it. We would also contact the environmental group on campus as well as the school newspapers. We would also have a meet and greet with engineering students (undergraduate and graduate) to show off the design.

No other student groups are involved but we will try to talk to the environmental club and school newspapers as well as other clubs relating to sustainability on campus. Our successful outcome would be our school or other organizations contributing more recycle. Recycle that can be directly used at plants since it would be perfectly sorted is what we aim for.

We would also like to see people interested in how well their organisation is recycling and give those people more information on how they are helping the environment.

Professor David Knox has worked in industry designing hardware such as circuit boards. He has a great background in robotics and will be able to oversee our design process as well as help us with theoretical knowledge and choosing and configuring sensors for the different types of recycle that have to be sorted.

$2200

We restarted the robotics club at the university and we were given

$1000 to get started by the engineering faculty.

Of that, approximately $100 was spent on the components used on the Recycle Sorter. This was a very preliminary prototype where we used temporary building materials. When we are able to redesign, it will have much greater capabilities, have a greater build quality and use more accurate sensors.

Sensors - $500 (multiple: infrared, ultrasonic, mic, photoresistors, halleffect, camera, etc. )

Motors and other actuators - $700

Electrical components - $500 (PCBS, mircocontroller, wires, wifi dongle, LCD screen etc.)

Building materials - $400 (Acrylic, metal)

Website - $100 (Domain and hosting service)

With the amount of funding requested it could be possible to create three or more recycle sorters and implement them across campus.

A more detailed list with each individual item and an order link can be available.