CONNECT TO COMMUNITY GRANT FINAL REPORT

2020/2021

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PROJECT REPORT

OVERVIEW OF SRIL'S C2C PROJECT

Surrey Robotics Innovation Lab (SRIL) is a non-profit organization dedicated to providing free and accessible educational opportunities for youth in the lower mainland. For our summer 2021 project, we hosted the 2021 SRIL Gravity Car Challenge. This event consisted of three workshops about computer-aided design (CAD), 3D printing and gravity car physics; a 3D printing program to print out participants' gravity car designs, which culminated in a final race of their cars; and lastly, a special guest speaker workshop about pursuing STEM in university.

This event was catered toward high-school-aged youth from across the lower mainland, but we had participation from post-secondary-aged and international students. Our target demographic allowed us to teach concepts and pose challenges that stimulated creative and critical thinking about the science of rapid prototyping gravity cars at a level that was relatable to their high school education.

SIGNIFICANT MILESTONES

The 2021 SRIL Gravity Car Challenge marks a new chapter in SRIL's vision for the future. As an ambitious leap from the 2020 Summer Workshops, SRIL provided youth participants with knowledge of STEM and provided an opportunity to apply said skills in a fun and engaging manner during the Covid-19 pandemic. This achievement was an extremely important milestone as SRIL thrives to empower youth innovators through STEM; empowering the ability to create, design, and bring ideas to reality.

Despite the success of the event, one milestone that was not reached was the target number of participants. The SRIL 2020 Summer workshops had over 300 unique viewers, whilst the 2021 Workshops only had approximately 70 unique viewers. We attribute such to the limited capacity of the event itself (60 participants maximum) once capacity was reached, resulting in a loss of interest of potential participants.

GRANT FUNDS ALLOCATION AND IMPACT

The funds for the project were invested into three sectors: pre-event, for-event, and after-event.

Starting with the pre-event investment, SRIL invested $74 towards advertising the 2021 Gravity Car Challenge across the social media platforms Facebook and Instagram, and $170 to host our home-grown website. According to our VP of Marketing and Outreach, Irene Zhang, registrants primarily learned about the event by word of mouth through friends, the majority of whom, in turn, learned about the event via our newsletters.

For the execution of the event, SRIL invested $597 towards materials. These materials included:

- 3D printing equipment (Ender 3 and filament)
- Gravity car parts (wheels and axles)
- Track materials (corrugated plastic)

Since the event allowed for the custom design of gravity cars in CAD, SRIL's expansion of 3D printing equipment proved vital towards 3D printing and constructing 16 unique gravity cars in 14 days. The track was also assembled during this time period and built of corrugated plastic held together with 3D printed clips.

Post-event spending of $325 included prize money for winners and gift cards for the event's guest speaker and judges. Outside of the project, the remaining grant funds of $335 were invested towards the future expansion of SRIL's events with the purchase of banners for future advertising campaigns and projects.

PROJECT IMPACT AND ASSESSMENT

SRIL launched the 2021 Gravity Car Challenge to provide an opportunity for youth to experiment with STEM concepts during the Covid-19 pandemic when hands-on applications of knowledge were not easily accessible. From SRIL's perspective of the live streams, participants seemed to thoroughly enjoy learning CAD and watching their gravity cars compete against one another — the SRIL team was blown away by the creativity and complexity of some of the designs. Following such, everybody was in an enthusiastic mood, as participants were eager and

asking for more.

Community Impact

In addition to the feedback we received, it seemed as though many participants successfully learned skills in CAD. This asset is extremely valuable for those pursuing a career in STEM as it allows for the transformation of an idea into reality. Accessing and applying this knowledge is vital as 3D printing is quickly becoming more accessible, and is widely used for DIY hobbies, and rapid prototyping. Furthermore, through the challenge of designing a gravity car, the project acted as an opportunity for experimentation and creativity, as well as introducing and applying the concept of tolerances, optimization, and design constraints.

Impact Assessment

Hence, in the assessment of the overall impact of the project, the 2021 Gravity Car Challenge was a success. However, although it provided youth with an opportunity to express and grow their passion in STEM, there were a few challenges with running the event. Mainly, the current structure of the SRIL team was heavily overburdened in order to meet tight deadlines while maintaining quality and professionalism. As such, SRIL will be undergoing a restructuring of the team and is planning to grow its internal resources to facilitate more events in the future.

SUSTAINED IMPACT OF SRIL'S WORK AND NEXT STEPS

Our summer 2021 project allowed us to establish a greater presence within our community and prepare ourselves to continue to provide accessible educational programs for youth across the lower mainland. We managed our resources to increase the number of 3D printers, 3D printing filament, promotional material, and website hosting services, which will sustain our work into the future.

As this year's project winds down, we have started planning on next year's project and beyond with the foundation that we've built up. In the future, we plan to host similar programs and events as our 2021 project, giving the opportunity for more youth to be able to experience rapid prototyping, 3D printing, and engineering. In addition, we will expand our website with more resources and improve its look and feel, as well as invest in banners and other SRIL-branded materials to help us promote our programs.

EXPENSE REPORT

Surrey Robotics Innovation Lab Connect to Community Expense Report

Expenditure Category	Total Expense
Pinewood Derby Car Parts and Accessories	$ 147.87
3D Printers and PLA Filament	$ 449.00
Facebook and Instagram Post Boosting	$ 73.5
Stand-up Banner	$ 207.20
Website Domain	$ 170.00
Livestream Equipment (Tripod, Phone stands, Microphone)	$ 128.68
Gift cards for 5 Judges	$ 100.00
Gift cards for prizes	$ 75.00
Project Cost	$1,351.25

Student Project Leader Declaration	
I hereby certify that the above statement is correct, that the expenditures conform to the requirements of the Grant Funding Agreement, and were made for the purposes for which the Project Funds were advanced.	
Sophie Gloria Lin	x Sophie
Full legal name of student	Student signature
January 21, 2021	778-878-2638, sophielin14@gmail.com
Date	Phone, Email

Community Partner Declaration	
I hereby certify that the expenditures summarized above were incurred wholly for the purposes of the approved Project.	
Sharissa Desrochers	x S Desrochers
Full Legal Name of CP Representative	Signature of CP Representative
Jan 21, 2022	6045829231 desrochers-s@surreyschools.ca
Date	Phone, Email

LEARNING SUMMARY

REVIEWING OUR LEARNING OBJECTIVES

All three learning objectives set out at the beginning of the project have been achieved. We were able to:

1. Demonstrate communication and leadership with our community partners and team members to positively represent all parties involved with the project
2. Grow our collaboration skills to organize project elements attentively
3. Develop professional etiquette to coordinate the team of volunteers while providing inspiration and accommodation

Although these learning objectives were most pertinent to Sophie, all SRIL team members involved were able to experience the same growth. During the project, the team wrote "time capsules" — journals to our future selves — to reflect upon our learning progress. Time capsules were written after every major team meeting.

In the bigger picture of the project, the key actors of our learning journey were our community representatives for allowing us to exercise professional conduct with a community partner and the other SRIL team members for allowing us to grow our leadership and project coordination skills. Overall, we are pleased with the learning experiences we have acquired during the course of this project and are prepared to further improve these skills via similar projects in the future.

SIGNIFICANT CHALLENGES DURING THE PROJECT

The biggest issue we faced was the strategic and logistical design of the project. This event was SRIL's first attempt at a design challenge; we overlooked some items in its design.

Event Execution Space

Firstly, the event was designed to be conducted in a classroom environment or an open indoor space, however, due to the Covid-19 pandemic, we were unable to rent a space at Surrey Libraries or SFU. As a result, the SRIL's president, Sophie Lin, generously allowed us to conduct and livestream the event in her basement. We attribute this problem to the complications of the Covid-19 pandemic

resulting in the closure of community spaces and hope it will be better in the future.

Event Participant Capacity

Another oversight was the number of participants we had. The challenge only had 20 slots, however, on launch day, we had a turnout of 70. This became an issue as there were many applicants who deserved to race but could not due to a lack of space. Due to SRIL's 3D printing capacity, we could not open more slots, however, we came to the solution that the top 20 applicants would be guaranteed a slot to race, and the remainder would still be free to design a car that would be showcased on SRIL's social media platforms along with all the other contestants. Thus, given the overwhelmingly positive feedback from participants and initial turnout, our team has established baseline planning expectations for future projects that would allow for a greater event capacity.

Distribution of Participant Materials

Finally, the original plan was to give participants their gravity cars following the conclusion of the challenge; however, similar to finding a location to host the event, we could not distribute the cars due to complications of the Covid-19 pandemic. As a result, SRIL decided to hold on to the gravity cars, and due to the longevity of the pandemic, has ruled out the possibility of distribution. While we are disappointed that the cars could not be given to their designers, the SRIL team is intent on finding sustainable methods to reuse them.

Overall, the project was a huge success; the SRIL team had a lot of fun conducting the project, and the participants learned and experienced the wonders of CAD and 3D printing. Given the results, amount of community interest, and amount of experience gained from our management oversights, SRIL's team feels motivated and capable of doing more for the community. We have learned many skills in event design, facilitation and troubleshooting and will do everything we can to make future projects even better.

CONTINUED ENGAGEMENT AND FURTHER EXPLORATION

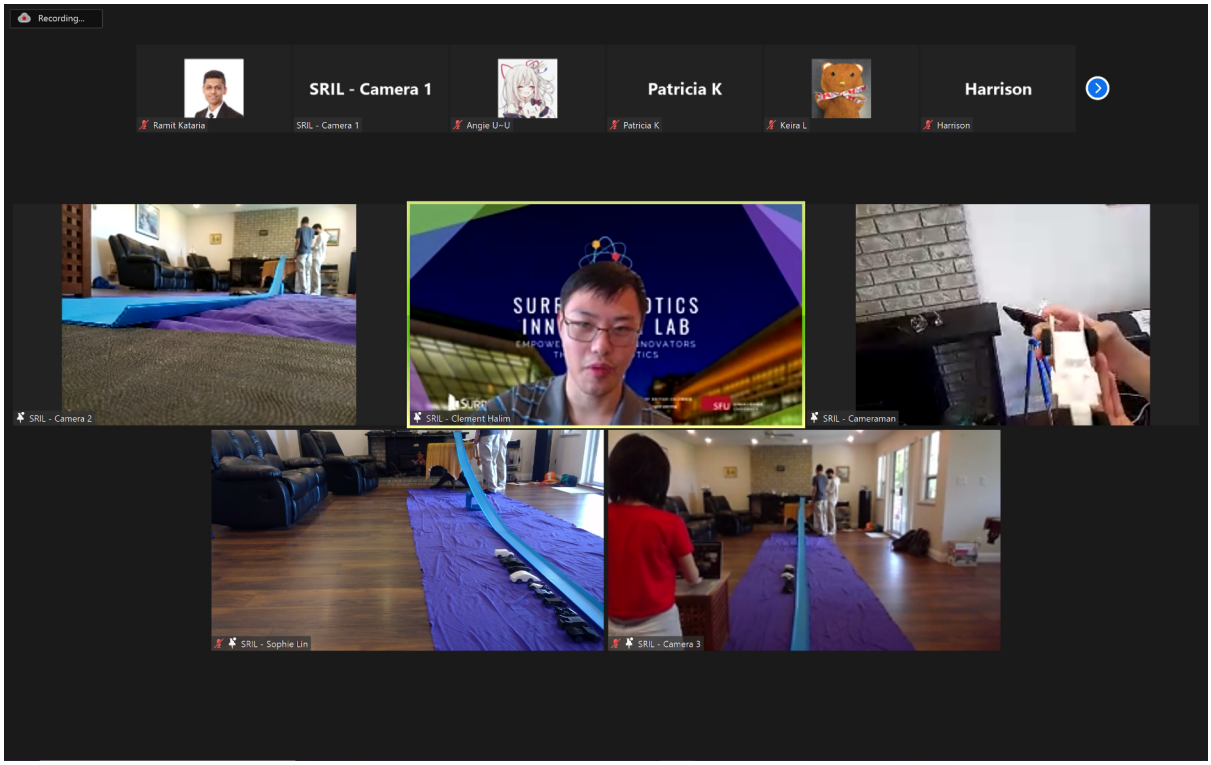
Sophie intends to grow SRIL and provide more opportunities to local youth with future projects. As president of SRIL, she will continue taking responsibility for the administrative and leadership aspects of the team. Having conducted two projects over the course of the COVID-19 pandemic, Sophie and the SRIL team now have extensive experience with the nuances of running programs in a

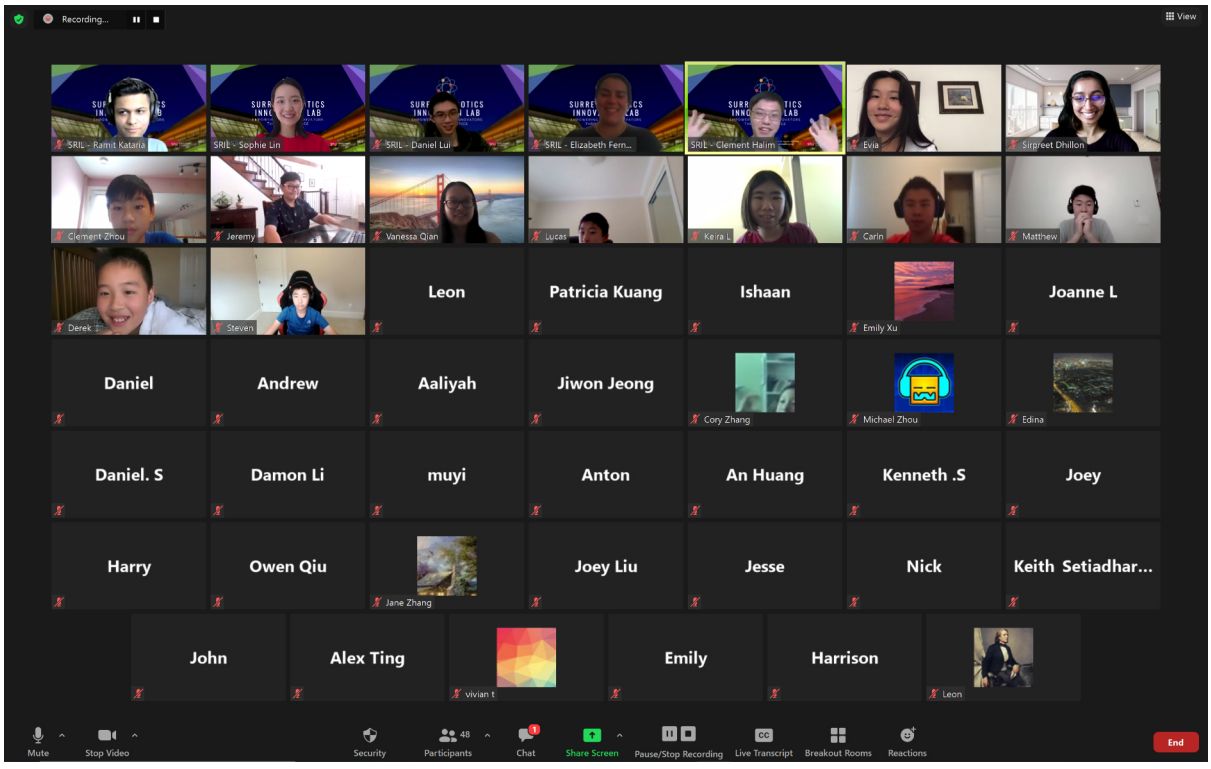
pandemic and are mindful of possible bottlenecks such as public health orders, closure of community venues, and difficulty sourcing project materials. As the pandemic situation improves eventually, we will be able to run our programs at community venues and meet in person with our participants for an even more engaging and hands-on experience.

TRANSFERRABLE SKILLS DEVELOPED

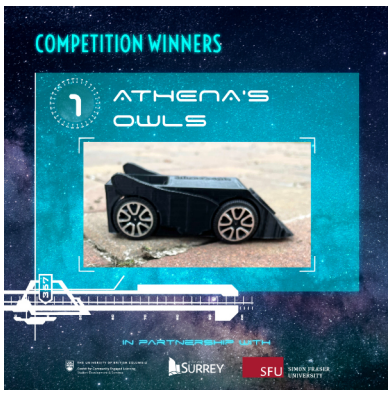
These projects allowed our team to collaborate and grow stronger collectively. Given the challenges mentioned above, the amount of support and joy expressed, this project motivates us, individuals, to challenge the unknown, be confident in ourselves and share our passions with others. Skills involved would include communication, leadership, listening, and teamwork, all of which may be applied on a daily basis. Without these core foundation skills, the project would not have been possible. Thus from experience, the future applications of this project's lessons will allow for greater adaptability and collaboration resulting in better results in a variety of applications.

PHOTO SUBMISSION






SRIL PRESENTS
GRAVITY
CAR
CHALLENGE
3 WORKSHOPS | 1 RACE
IN PARTNERSHIP WITH
THE UNIVERSITY OF BRITISH COLUMBIA
Centre for Community Engaged Learning
SURREY
SFU
SIMON FRASER UNIVERSITY


COMPETITION WINNERS
1
ATHENA'S
OWLS
IN PARTNERSHIP WITH
SURREY
SFU
SIMON FRASER UNIVERSITY


COMPETITION WINNERS
2
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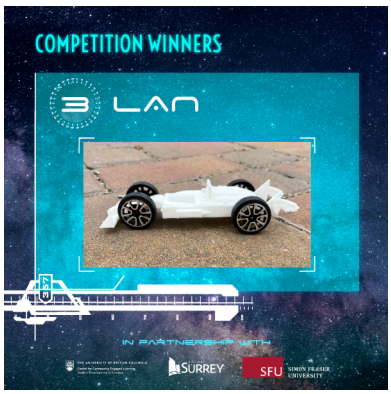
IN PARTNERSHIP WITH
SURREY
SFU
SIMON FRASER UNIVERSITY


COMPETITION WINNERS
3
LAN
IN PARTNERSHIP WITH
SURREY
SFU
SIMON FRASER UNIVERSITY

WORKSHOP RECORDINGS ON YOUTUBE

PHOTO RELEASE FORMS FOLDER

FINAL REPORT SURVEY

5. Final Report Survey

Please check areas of learning and engagement relevant to your project:

Project Goals

- [x] Operational efficiency
- [x] Expand capacity of community organization to serve community
- [x] Build skills of community members/community organization staff
- [x] Raise awareness of community organization activities
- [x] Understand feasibility of a project/idea
- [ ] Analyze or revise a business process
- [x] Evaluate a program or project
- [ ] Other: Please add additional goals:

_____

Project Activities

- [ ] Building physical resources (e.g. construction project)
- [ ] Designing a physical resource (e.g. construction or product)
- [x] Direct delivery of services to community members (e.g. front desk duties, program delivery, tutoring, mentoring)
- [ ] Conducting Research (literature review, developing research tools, collecting data)
- [ ] Analyzing data, policies or processes
- [x] Creating communications materials (e.g. pamphlets, websites, fact sheets)
- [ ] Developing operational resources (e.g. process guides, manuals)
- [ ] Preparing recommendations or proposals
- [ ] Training community organization staff or volunteers
- [x] Developing curricular resources (e.g. workshops, classes)
- [ ] Facilitating community dialogue or consultations
- [ ] Providing technical or clinical services to the community organization or community members (e.g. IT support, dental clinic)
- [ ] Other: Please add additional activities (separated by commas):

_____

Project Impact

- [x] Improved/increased service to target community
- [ ] More efficient use of community organization resources
- [x] Community organization better able to identify/understand community priorities, challenges, interests
- [ ] Increased viability of community organization
- [x] Other: Please add additional impacts separated by commas): Provide free and accessible STEM education during pandemic restrictions

Project Areas

- [ ] Aboriginal Engagement
- [ ] Advocacy - Civic Participation
- [ ] Arts - Heritage - Culture
- [ ] Business Development - Finance
- [ ] Community Development
- [x] Education - Tutoring
- [x] Engineering - Construction
- [ ] Food Systems
- [ ] Government - Policy
- [ ] Health - Human Services
- [ ] Inclusion - Diversity
- [ ] Languages - Literacy
- [ ] IT - Media - Communications
- [ ] Natural Resource Management
- [ ] Poverty and Housing
- [ ] Sport - Recreation
- [ ] Sustainability - Environment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INNOVATION LAB
EMPOWERING YOUTH INNOVATORS