

Student Robotics

Trustees' Annual Report 2023

From 1st August 2022 to 31st July 2023

Reference and Administrative Details

Charity Name:	Student Robotics
Charity Registration Number:	1163168
Principal Address:	Student Robotics Lytchett House 13 Freeland Park Wareham Road Lytchett Matravers Poole
Trustees:	Diane Dowling David Massey Thomas Scarsbrook

Objectives and Activities

Student Robotics' purpose, as specified in its constitution, is the advancement of education and training for the public benefit, particularly in relation to engineering, mathematics, robotics, computer skills, computer science, computer software development and related subjects.

The primary activity carried out by the charity to meet its objective is organising and running an annual robotics competition for 16 to 19 year-olds. This competition challenges teams of students to design, build and develop autonomous robots. After announcing the year's game, we give teams six months to engineer their creations. We supply each team with a core, bespoke electronics kit and mentor teams throughout. We do not charge a fee to take part in the competition as we believe that this poses an unreasonable barrier to entry, especially to those who may initially have minimal exposure to engineering and robotics and therefore may not begin with a high level of confidence. There is little exposure to real world engineering in formal education settings for this age group so it is important that there are no barriers to "having a go".

The charity continues to be successful in meeting its aim of providing young people with an introduction to STEM careers. Our vision states that “We want to foster a world where engineering and artificial intelligence is accessible to young people.” The fact that our volunteers are almost entirely drawn from those who have taken part in Student Robotics’ events in previous competition cycles, and that we continue to recruit new schools, demonstrates that we are fostering a lively interest in engineering amongst the students who take part in our competition. Our mission is “To bring the excitement of engineering and the challenge of coding to young people through robotics.” and it is clear that we continue to achieve this.

Achievements and Performance

The 2022-23 robotics competition marked the second year of our return to a physical, in-person format after the challenges posed by the Covid-19 pandemic. This year's competition saw 34 participating teams, with the majority from England, one from Guernsey, and one from Germany. We were excited to welcome an increased number of teams, reflecting our growing community of passionate students and mentors.

Kickstart events, where the game was announced, were held both physically and broadcasted online to accommodate all participating teams. This hybrid approach allowed us to engage with teams both in-person and remotely, ensuring accessibility and inclusivity for all.

We hosted a number of “tech days”, chances for teams to work on their robots under the supervision of our volunteers, at various locations around England this year. Teams that have come along have found these very useful.

Our game this year, "Greed," challenged teams to design autonomous robots capable of stealing small tokens from designated locations within the arena. The robots were required to navigate the arena, identify tokens, and steal them efficiently from other robots while avoiding any obstacles.

In addition to the physical competition, we introduced a virtual segment inspired by our previous virtual competitions. This allowed teams to participate remotely and further develop their coding and problem-solving skills in a simulated environment. The virtual segment also helped to maintain engagement and enthusiasm throughout the competition cycle. For the first time, we introduced new challenges for the teams to compete in, adding an extra layer of excitement and encouraging further innovation in robotics design and strategy. These challenges provided teams with additional opportunities to showcase their skills and creativity while fostering a spirit of friendly competition. We dedicated significant effort to professionalising our event, with a particular focus on operations. This included streamlining processes, improving communication, and enhancing the overall event experience for both participants and spectators.

A key highlight of this year's competition was the professional-grade live stream, which we managed to deliver at a low cost. Building on our experience from previous years, we were able to provide high-quality streaming with engaging commentary, informative overlays, and

interactive chat features. This allowed teams and spectators to enjoy the excitement of the competition, even if they were unable to attend in person.

Our Kit Team had a year of innovation and were able to provide teams with a web interface to their robot to aid in debugging as well as revamping the computer vision library to drastically improve the detection of our fiducial markers in a wide range of lighting conditions. They also introduced a new ticketing system to improve the level of support we provide to competitors at our main event.

The Marketing Team worked towards improving the brand identity of Student Robotics. They also introduced goody bags for competitors at the competition, containing the competition booklet, some stickers and a branded pencil. They also engaged with teams on social media throughout the year, sharing and amplifying the teams' progress.

In conclusion, the 2022-23 robotics competition was a resounding success, showcasing the incredible talents and dedication of our participating teams. We are grateful to our volunteers, mentors, and sponsors for their unwavering support and look forward to another exciting competition in the coming year.

Structure, Governance and Management

Student Robotics is a Charitable Incorporated Organisation (CIO), registered on 18th August 2015. The charity is governed by its constitution which defines its objectives, powers and structure of governance.

Student Robotics is led by a board of trustees that communicate on a regular basis to discuss the direction and policy of the charity. The trustees also meet on a semi-regular basis to fulfil the requirements set out in the constitution.

The board of trustees is made up of engineering and computer science professionals and educators. The specialised knowledge held by the trustees in these subjects is an advantage when meeting the charity's aims and objectives since it ensures the technological content of its activities is both state of the art and relevant to its beneficiaries. Having two trustees who had managed student teams gives a clear insight into how the teams perceive the competition and the benefits they take from it.

Trustees have been recruited based upon their involvement with activities run prior to the registration of the charity and through word of mouth since becoming a charity. It is envisaged that future trustees may be recruited from past beneficiaries of the charity as they enter into the professional world. New trustees are appointed either by a resolution of the members of the charity or by a decision of the existing trustees.

As trustees have had prior intimate involvement with the charity's activities and are actively involved with the day-to-day running of the activities they are already well versed in the running and operation of the charity. To aid with this, the charity has a general approach of openness and transparency with regards to its governance and management, where appropriate.

All trustees are actively encouraged to contribute to and improve the charity's 'Operations Manual'. This manual sets out the operational structure of the charity; the delegation of powers to others in named roles, for the purpose of the day-to-day running of each aspect of the charity; and the processes to be followed by people in named roles. This manual is treated as a living document and is constantly evolving to meet the requirements of the charity.

The structure of the charity is organised with the aim of potentially offering other activities, in addition to the annual robotics competition for 16-19 year olds, at some point in the future. The responsibilities of the day to day running of the charity are delegated to Committees each with a specific focus and overseen by the trustees.

The responsibility of running the charity's primary activity, the annual robotics competition for 16-19 year olds, is delegated to the Competition Committee, a committed group of volunteers who report regularly to the trustees.

The robotics kit is maintained by a team led by the Kit Team Committee who have responsibility for developing and maintaining the kit that is used in the competition. The Kit Team comprises engineers and engineering students who bring a wide range of expertise to the task.

The charity's technical infrastructure and services are managed by the Infrastructure Team Committee who are responsible for ensuring the charity has the technical infrastructure it needs to function. The Infrastructure Team comprises software and DevOps engineers with a wealth of experience and knowledge in the area.

The trustees are responsible for heading up the Fundraising Team, which is responsible for ensuring the charity has sufficient funds to run its programme by reaching out to and working with existing and potential sponsors.

The public image of Student Robotics is the responsibility of the Marketing Team Committee who manage the charity's social media presence as well as its website. The Committee is also responsible for recruiting new competitor teams through these channels.

Financial Review

The financial state of the charity continues to be satisfactory. The bank balance at the end of the year was £16,789. Reserves are necessary to allow the next competition to be planned and launched without relying on having to attract funding to a specific schedule. We always set a budget based on the amount we have in the bank, rather than hoping that we can raise funds during the actual year of the competition. The amount we have will allow a competition to take place in 2024.

A financial statement has been filed alongside this report and the full accounts are available for inspection at any time.

Approved by the board of Trustees and signed on its behalf:

Diane Dowling

Diane Dowling
Trustee (Treasurer)



CHARITY COMMISSION
FOR ENGLAND AND WALES

Charity Name
Student Robotics

No (if any)
1163168

Receipts and payments accounts

CC16a

For the period
from

Period start date
01/08/2022

To

Period end date
31/07/2023

Section A Receipts and payments

	Unrestricted funds to the nearest £	Restricted funds to the nearest £	Endowment funds to the nearest £	Total funds to the nearest £	Last year to the nearest £
A1 Receipts					
Donations	20,938	-	-	20,938	12,585
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
Sub total (Gross income for AR)	20,938	-	-	20,938	12,585
A2 Asset and investment sales, (see table).					
	-	-	-	-	-
	-	-	-	-	-
Sub total	-	-	-	-	-
Total receipts	20,938	-	-	20,938	12,585
A3 Payments					
Accounting and legal	83	-	-	83	40
Bank fees	60	-	-	60	42
Costs of competition	7,824	-	-	7,824	930
Container rental	1,373	-	-	1,373	1,373
Digital infrastructure	78	-	-	78	346
Insurance	457	-	-	457	451
Kit development	3,103	-	-	3,103	2,732
Mail services	275	-	-	275	519
Marketing	692	-	-	692	483
Sub total	13,945	-	-	13,945	6,916
A4 Asset and investment purchases, (see table)					
	-	-	-	-	-
	-	-	-	-	-
Sub total	-	-	-	-	-
Total payments	13,945	-	-	13,945	6,916
Net of receipts/(payments)	6,993	-	-	6,993	5,669
A5 Transfers between funds	-	-	-	-	-
A6 Cash funds last year end	9,796	-	-	9,796	4,127
Cash funds this year end	16,789	-	-	16,789	9,796

Section B Statement of assets and liabilities at the end of the period

Categories	Details	Unrestricted funds to nearest £	Restricted funds to nearest £	Endowment funds to nearest £
B1 Cash funds	HSBC	16,789	-	-
		-	-	-
		-	-	-
	Total cash funds	16,789	-	-
	(agree balances with receipts and payments account(s))	OK	OK	OK
		Unrestricted funds to nearest £	Restricted funds to nearest £	Endowment funds to nearest £
B2 Other monetary assets	Details			
		-	-	-
		-	-	-
		-	-	-
		-	-	-
		-	-	-
B3 Investment assets	Details	Fund to which asset belongs	Cost (optional)	Current value (optional)
			-	-
			-	-
			-	-
			-	-
B4 Assets retained for the charity's own use	Details	Fund to which asset belongs	Cost (optional)	Current value (optional)
			-	-
			-	-
			-	-
			-	-
			-	-
			-	-
			-	-
			-	-
B5 Liabilities	Details	Fund to which liability relates	Amount due (optional)	When due (optional)
			-	
			-	
			-	
			-	
Signed by one or two trustees on behalf of all the trustees		Signature	Print Name	Date of approval
		<i>Diane Dowling</i>	Diane Dowling	30/08/2024