

Student Robotics

Trustees' Annual Report 2021

From 1st August 2020 to 31st July 2021

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 Jimmy Thompson (resigned September 2020)

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 science, computer software development and related subjects.

The primary activity carried out by the charity to meet its objective is the running of 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 electronics kit, which provides a framework on which to build their robot, and our volunteers mentor teams throughout the competition cycle. We do not charge a fee to partake in the competition as this can pose a barrier to entry, especially to those schools that may initially have minimal exposure to engineering and robotics and therefore may not begin with high expectation of success.

The 2020-21 robotics competition was designed to be completed entirely remotely, owing to lockdown restrictions at the time. This followed the successful “virtual competition” devised during the 2019-20 competition year. Aiming to make the most of the opportunity, the challenge set to teams involved remotely-activated sensors which would be hard to replicate in an in-person competition. Similarly, the competition was opened to teams worldwide as we weren’t restricted by the need for robots to end up in the same physical location.

Sadly this virtual competition meant that we did not have a physical engineering challenge for the teams to solve, though to help try and counter this we did extend several kit loans to teams so that they could be used to teach robotics outside of our own programme.

Overall, there were twenty one competing teams for the 2020-21 competition. The majority of these were based in the UK, but we also had teams from Australia, Brunei, France, Germany, and Malaysia. This is fewer teams than previous years, mostly due to schools having difficulty arranging for extra-curricular activities alongside Covid-19 measures.

The Kickstart event where the game is announced was held virtually, live-streamed to YouTube on the Student Robotics channel. Competitors were able to post questions directly to the chat alongside the video which were answered live. As well as announcing the game this event talked teams through the structure of the competition and highlighted key problems they would need to solve.

Our game this year, Radars of the Lost Ark, challenged teams to score points by claiming territories using radios inside a simulated arena we developed. Teams had to navigate the arena scanning for tower transmissions and sending their own transmissions back to claim territories. Taking advantage of the virtual nature of the competition, we changed the structure to run multiple “league” sessions over several months. After each session, we released a new module to the game which added new challenges and features. As with every Student Robotics competition, the robots must be fully autonomous and once the round has begun, no-one is able to interfere with the robots until the end of the round, two and a half minutes later.

While we have offered a support forum for many years, this year we switched to use Discord to host these forums. Competitors and Team Leaders were invited so they could ask for help, share progress and chat to other teams throughout the year. We noticed an increased presence of teams in the Discord server with more inter-team communication and peer support.

Thanks to the relative ease of running matches in a virtual environment we were able to offer “friendly” matches to teams. These were sessions where teams would submit their code to be run against other teams with no awards given. Volunteers also gave advice and guidance as these friendly matches were live streamed to teams. These events proved popular and gave the teams a chance to interact with each other as well as allowing a wider range of volunteers to be shown due to the more informal nature of the commentary.

Taking all our learnings from the previous virtual event we held we invested heavily into the time needed to master the technologies used to broadcast these matches. This helped us increase our production values and helped to make the livestreams more polished. While

these live streams were no match for the atmosphere of an in person event, the high calibre of commentators, our information overlays, and our active livestream chat did provide a spectacle for teams to look forward to.

Achievements and Performance

The charity continues to be successful in meeting its aim of providing young people with an introduction to STEM careers. As our vision states “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 in the past and that we continue to gather support from new schools shows 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 before participating in Student Robotics 79% of competitors were strongly considering pursuing a career in a STEM related field. After participating, this number increased to 89% showing we continue to achieve this.

In a survey of competitors after the event, 100% of those who responded said they would recommend Student Robotics.

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 meets on a regular basis to provide the strategic direction for the charity and to ensure that all financial and legal obligations are met. The board of Trustees is made up of engineering and computer science professionals and educators; two of the Trustees have previously managed student teams, the third is a long standing volunteer. This specialised knowledge and experience is an asset since it ensures the technological content of the charity’s activities is both state of the art and relevant to its beneficiaries.

New Trustees can be appointed either by a resolution of the Members of the charity or by a decision of the existing Trustees. To date, Trustees have been recruited by canvassing team leaders and volunteers for expressions of interest followed by a rigorous selection process. It is envisaged that future Trustees will be recruited from beneficiaries of the charity as they enter into the professional world.

The Trustees are held to account by the Members of the charity. All active volunteers are invited to become Members if they so wish. The register of Members also includes past volunteers who are no longer active but who wish to remain part of the organisation.

The day-to-day work of the charity is delivered by its volunteers. The charity has a general approach of openness and transparency, and as such all volunteers 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 updated to meet the needs of the organisation.

The responsibility for delivering key aspects of the charity's work is delegated to committees, each with a specific focus and overseen by the Trustees. The primary activity, the annual robotics competition for 16-19 year olds, is delegated to the Competition Team Committee. Most volunteers are members of the competition team. 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.

Financial Review

Our only income during the financial year was a small amount received from a workplace charitable donations programme. We also received some sums in reimbursement of costs paid out for the previous year's competition (that had been cancelled due to Covid restrictions). As we did not run a physical competition, and had minimal outgoings, we were able to repay a long standing loan that had been made to the organisation from a founding member.

The bank balance at the end of the year was £4,127. This small reserve is necessary to allow us to cover the fixed costs of the organisation for the year ahead without having to rely on the need to attract funding to a specific schedule.

Fundraising continues to be a significant challenge. The Covid-19 pandemic has had a major impact on the activities of the charity. We have now been unable to run a physical competition for two years and potential sponsors have had to tighten their belts and think hard about where to allocate funding. It has been very hard to attract funding in this climate of uncertainty. Fundraising will be a priority for the charity in the coming year.

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

Trustee (Treasurer)



CHARITY COMMISSION
FOR ENGLAND AND WALES

Charity name

Student Robotics

1163168

Receipts and payments accounts

CC16a

For the period
from

Period start date

1 August 2020

To

Period end date

31 July 2021

Section A Receipts and payments

	Unrestricted funds	Restricted funds	Endowment funds	Total funds	Last year
	to the nearest £	to the nearest £	to the nearest £	to the nearest £	to the nearest £
A1 Receipts					
Donations	1,378	-	-	1,378	531
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
Sub total (Gross income for AR)	1,378	-	-	1,378	531
A2 Asset and investment sales, (see table).					
	-	-	-	-	-
	-	-	-	-	-
Sub total	-	-	-	-	-
Total receipts	1,378	-	-	1,378	531

A3 Payments

Bank charges	33	-	-	33	17
Insurance	430	-	-	430	488
Mail services	300	-	-	300	67
Meeting costs	-	-	-	-	82

Web services	338	-	-	338	850
Container and kit storage	1,373	-	-	1,373	1,630
Competition costs	- 1,248	-	-	- 1,248	1,851
Kit updating	-	-	-	-	339
Marketing costs	-	-	-	-	38
Sub total	1,226	-	-	1,226	5,362
A4 Asset and investment purchases, (see table)					
Loan repayment	8,882	-	-	8,882	
	-	-	-	-	
Sub total	8,882	-	-	8,882	
Total payments	10,108	-	-	10,108	5,362
Net of receipts/(payments)	- 8,730	-	-	- 8,730	- 4,831
A5 Transfers between funds	-	-	-	-	-
A6 Cash funds last year end	12,857	-	-	12,857	17,688
Cash funds this year end	4,127	-	-	4,127	12,857

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	4,127	-	-
		-	-	-
		-	-	-
	Total cash funds	4,127	-	-
	(agree balances with receipts and payments account (s))	OK	OK	OK
		Unrestricted funds	Restricted funds	Endowment funds

B2 Other monetary assets

Details	to nearest £	to nearest £	to nearest £
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

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 (Treasurer)	20/04/22