	Alistair Lynn		Start	End	Very unlikely		First Aid injury/illness	1	1.9	Very low	Acceptable	No further	action is nece	ssary oth	er than to er	sure that the controls ar
	Josh Perriman Thomas Scarsbrook				1							No addition				can be implemented at
Assessors	Will Barber	Event dates	01/04/23	3 02/04/23	3 Unlikely		Minor injury/illness	2	3-4	4 Low		very low cost (in terms of time, money and effort). Consideration should be given as to whether the risks can be low				
												but the cos	ts of addition	al risk red	luction meas	erably acceptable level, ures should be taken int
Date assessed	27/2/23				Likely	3	'3 day' injury/illness	3	5-7	Medium	Tolerable	defined tim	e period.			be implemented within a
												measures :	should be imp	lemented	d urgently wit	he risk. Risk reduction hin a defined time perior
												and it migh activity, or f	t be necessa o apply interi	y to cons m risk cor	ider suspen ntrol measur	ding or restricting the es, until this has been
					Fairly likely	4	Major injury/illness	4	8-14	High	Tolerable	completed. additional of	Considerable control measu	e resource res.	es might hav	e to be allocated to
					Very likely	5	Fatality/disabling injury	5	15+	Very high	Unacceptab		improvemen a tolerable o			ecessary, so that risk is
Who is at risk	Description															
Competitors	A competitor (16-19 year old) who is involved															
Team Supervisors Volunteers	A named Team Supervisor (responsible adult) Someone working on behalf of Student Robot			tivity												
Third Parties	Someone not involved in the risk activity. This			rs, volunteers	s, or event visito	ors.										
Hazard	Description	Who is at risk		Severity	Risk Factor										y Risk fac	tor Responsible pers
njury while using manual or power tools	Inappropriate use of tools resulting in tools slipping and/or breaking and thereby injuring	and/or breaking and thereby injuring Team Supervisors Team Supervisors to supervise all tool use by teams. To rithose nearby. Third Parties All use by Volunteers should be by a competent adult.											2	2	4 Team Supervisors SR Health and Safe Coordinator	
	the user or those nearby.	I hird Parties				All use by Volunteers should be by a competent adult. Loose hair or clothing to be tucked in or removed whilst operating tools. Teams reminded in advance that they should provide their own safety gear along with tools.								Coordinator		
	teams remined in advance mat they should provide their own savely gear along with tools. Student Robotics will not provide any tools to Competitors. Safety gear may be provided. First aid provision available to manage any incidents.															
Interaction with robots: electric shock	Robots operate from battery power, and outputs can be enabled/disabled	Competitiors Team Supervisors	-	2 4	4 8	First aid provision available to manage any incidents. 8 Team Supervisors to supervise work on robots in team pits. Robots must be powered down and placed within the team pits if left unsupervised.								4	4 Team Supervisors SR Health and Safe	
	autonomously. Mishandling of the battery, circuitry, or wiring can result in an electric	Volunteers				Robots must be pov Robots are required	vered down when being ins to provide a housing for th	pected or handle e battery to prote	ed by a v ect it from	olunteer.	l damage.					Coordinator
	shock and potential burns. Mishandling the battery can be severe due to the high current					Robot wiring is to be The battery must co	e kept away from moving pa innect only into the Student	arts to prevent da	amage.		-	the power				
	capacity of the battery, the wiring in the kit has potential for harm reduced due to the kit					off from the rest of t A readily available a	he robot. and obvious power off butto									
	providing current limiting.					accessible from the Additional power so	urces used on the robot mu	ist be approved	beforeha	and, and mus	t provide an	easy and				
						All voltages within r	sm,obvious and accessible obots to be within SELV lim safety inspection at the be	its (120VDC, 50'	VAC ma	ximum).						
						Teams will be required to a competing until they	red to rectify any potentially	dangerous area	s of thei	r robots, and	may be prev	ented from				
Interactions with robots:	Parts of the robot heat up due to electrical	Competitors			2 0	Food and drink to b	e stored in sealed containe s circuit boards are housed								3	3 Team Supervisors
burns	energy dissipation or friction. This might result in a minor burn on the skin.	Team Supervisors Volunteers		2 :	3 6	Team Supervisors t	s circuit boards are noused o supervise work on robots wered down and placed with	in team pits.		eupopuicod					3	3 Team Supervisors SR Health and Saf
	result in a minor burn on the skin.	volunteers				Volunteers should in	nspect a robot to identify an wered down when being ins	y potential risks	before h	andling.	ss necessar	v in which				Coordinator
						case the robot must	be inspected for risks prior the Student Robotics kit ar	to handling.	,			,,				
Interaction with robots: other injuries	Robots are constructed by competitors and can have sharp edges. Also the robots are	Competitors Team Supervisors	4	4 :	2 8	Team Supervisors t Robots must be pov			2	1	2 Team Supervisors SR Health and Safe					
	constructed with moving parts, often powered autonomously, which can result in cuts or					Robots must be imr	nobilised when being inspe and obvious power off butto	halbred or handled	hy a voli	inteer	Power Board	must be				Coordinator
	limbs being crushed. Due to the typical low power of the robots cuts are likely to be					accessible from the	top of the robot. urces used on the robot mu									
	minor and crushing likely to result in little more than bruising.					safe cutoff mechani	sm. obvious and accessible	from the top of								
						Robots subject to a safety inspection at the beginning of the competition and randomly throughout the event. Teams will be required to rectify any potentially dangerous areas of their robots, and may be prevented from competing until they do so.										
Injury to Competitors, SR Volunteers, and Visitors	Robots may behave in unsafe ways, either inherently or due to performing something	Competitors Team Supervisors	1	3 :	2 6	Robots subject to a Robots re-inspected	safety inspection before er d randomly throughout the e	try into an arena went, entry into	he aren	a or access t	o batteries ca	in be			1	1 SR Health and Safe Coordinator
due to unsafe robots	typically safe but in inappropriate circumstances. Examples include a sharp	Volunteers Third parties				revoked at any time. Anyone identifying a potential safety issue to report it to the safety inspector.										
	edge being exposed, or a projectile being launched towards observers.					Arena access contr the arena is not per										
	Unsuitable use of battery powered	Competitors		3 :	3 9	All powered equipm	n to be readily accessible or eent to be used when appro		manner	they are des	igned to be u	ised.			3	3 Team Supervisors
sources	equipment, or the use of damaged battery powered equipment or cabling, resulting in	Team Supervisors				Damaged equipment No wires to be expo	nt to be retired from use. used on batteries or charges	s .								
	low voltage (<120VDC, <50VAC) electric shock															
sources	Unsuitable use of mains equipment, or the use of damaged mains equipment or cabling,	Competitors Team Supervisors	1	2 4	4 8	All powered equipm	nd cabling to be appropriate ent to be used when appro	priate and in the	manner	they are des	igned to be u	ised.			4	4 Team Supervisors SR Health and Safe
	results in a high voltage high current electric shock	Volunteers Third parties				Mains cabling to ke Mains cabling to be	pt off the floor in regular an secured down and inspect	d high use walkv ed at intervals fo	rays. r damag	e.						Coordinator
						Damaged equipment	s mains equipment used to nt to be retired from use.	be visually inspe	cted be	fore use.						
Injury from improper manual handling	Improper handling technique, or moving of equipment with insufficient people results in	Competitors Team Supervisors	1	3 :	3 9	Volunteers involved	o supervise their teams. in manual handling trained	and briefed.					1	2	2	4 Team Supervisors SR Health and Safe
	the individual handling causing personal injury. Handling of equipment unsafe for manual	Volunteers Third parties				Handling to be brok	ly performed within an indiv en down into managable ch	unks where pos	sible an	d appropriate						Coordinator
	handling of equipment unsafe for manual handling resulting in cuts or other physical injury.					Appropriate protecti Heavy equipment n Robots not to excee	ve equipment provided, if a ot to be moved in busy area	ppiicable. Is.								
	Nearby third parties getting injured by moving equipment, or crushed by dropped					Robots not to excee	iu loky.									
Cline trine and falls	equipment.	Competitors		2	4 12	Futencies leads on	cured down and inspected r	an dash i							2	4 Team Supervisors
Slips, trips, and falls	in a person falling, potentially whilst carrying equipment. This can potentially result in	Team Supervisors Volunteers		5 .	4 12	Cabling and equipm	ent kept off the floor in region enforce teams keeping th	ular and high use	e walkwa	ays.				-	2	SR Health and Saf
	bruises or broken bones.					Carrying of robots of Running is not perm	r large or heavy objects on	the stairs to be	ept to a	minimum.						
Battery failure - smoke fire	The lithium polymer (LiPo) batteries used	Competitors		1	5 5		r trip hazards to be signed a harged in fire-proof bags ar			possible.					3	3 Team Supervisors
	within the robots have the potential if mistreated to ignite and become a self-	Team Supervisors Volunteers			-	Robots to provide is	olated enclosure for install am Supervisors have been	ed batteries to pr	otect ag	ainst crushin of the batter	g or puncturini ies throughou	ng damage. ut the				SR Health and Safe Coordinator
	sustaining fire. Smoke released from this combustion is potentially harmful if inhaled.	Third parties				competition year. SR Volunteers and	Team Supervisors to identif									
Injury moving robots	Robots have to be lifted into and out of the	Competitors	3	3 :	3 9	Helpdesk for safe d Doors into arena cle	isposal. early marked, and any pote	ntial trip hazards	highligh	ted with haz	ard tape.				3	3 SR Health and Saf
into/out of the arena	arena, involving lifting a potentially large and heavy robot over the arena wall and over and	Volunteers				During matches, Co Robots to be immot	mpetitors are not allowed i bilised whilst entering and e	n the arena while xiting the arena.	t the rot and in t	oots are in m he staging ar	otion. ea.					Coordinator
	around arena components which may present trip hazards.					Individuals carrying is available.	robots reminded not to rus	n, support provid	ed or th	e carrying pr	evented if ins	ufficient time				
	Time limitations require robots to be powered up at time of arena entry, potentially allowing					Student Robotics vo	olunteers to intervene if han	dling is deemed	unsafe.							
	unexpected robot movement. A person on the ground is injured by a	Competitors	3	3	4 12	Arena to be constru	cted and tested as per Met	hod Statement, a	and will b	oe subject to	inspection by	SR			3	3
objects falling from height	person or object falling from a height	Team Supervisors Volunteers				Volunteers through Work at height only	out the event, with intervent conducted by suitably train	ions for repair if ed and equipped	deemed I individu	necessary.						
		Third parties				Personnel clipped of	to be performed where abs n where appropriate.	olutely necessar	у.							
						Tools on lanyards w Head protection to I Areas in which work	there appropriate. be worn when at height or us at height is being perform	nderneath ongo	ing work	at height wh	ere appropria	ate.				
						Physical barriers to Leaning over barrie	be used where objects are rs or ledges at heights not p	at risk of being p permitted.	ushed o	over the edge	of barriers o	r ledges.				
						Objects are not to b Objects are not to b	e held over barriers or edg e passed down from height	es. s where an alter	native ro	oute is availa	ole.					
Injury to a person due to falling from height	A person working at height falls and injures themselves on the way down/on landing	Volunteers	2	2	5 10	Work at height only	conducted by suitably train to be performed where abs	ed and equipped	l individu	uals.					3	3
J						Personnel clipped o	in where appropriate. nies or ledges at heights no		-							
Hearing damage from	Exposure to sounds at too great a volume for	Third parties		2 :	3 6	Avoid use of excess									3	3 SR Health and Safe
excessive noise levels	an extended period causing damage to the listeners hearing					Noise levels monito										Coordinator
Reaction to theatrical effects utilised, such as	Theatrical effects causing shock, or epileptic (or similar) fits.	Third parties	3	2 :	3 6	Signage to be clear	ly visible in areas where the smoke to be kept to a minir	atrical effects ar	e used.						3	3 SR Health and Safe
lighting effects		Compalitore			5 15	Any flashing to be a	t no greater rate than 4 flas	hes per second.							2	
Accidents due to fatigue from working long hours	Fatigue induce poor judgement resulting in unknown task-specific accident causing injury to the individual undertaking the task or	Competitors Team Supervisors Volunteers	1	ء ا	5 15	Volunteers suspecte	o supervise their teams. ed of excessive tiredness re ged to take breaks. Opport	stricted from ac	ivities th	at may be co	nsequently d	angerous.			2	2 Team Supervisors SR Health and Safe Coordinator
	injury to the individual undertaking the task or those nearby. Severity set to max level 5 due to	Volunteers Third Parties				vului ileers encoura	ged to take breaks. Opport	anty and space t	u volun	weer Dreaks a	vallaDIC.					Coordinator
Analdania di tati t	unpredictability of what task may be affected.	Third Dec ²		2		Team Course									0	0 Tear Out
Accidents due to being	erratic behaviour resulting in unknown	Third Parties	1	<u>د</u> ا	5 10	Alcohol consumptio	o supervise their teams. n prohibited on site. nfluence of alcohol or illegal	4		ff aile					0	0 Team Supervisors SR Health and Safe Coordinator
under the influence of alcohol or drugs	accident causing injury to the individual											ties that may				Coordinator

COVID-19	Attendees catching COVID-19 and becoming 1 ill.	Third Parties	2	3	Anyone experiencing symptoms of COVID-19, or who has tested positive for COVID-19 in the 7 days beforehand asked to not attend. Hand sanitisation stations available throughhout and attendees encouraged to use them. Attendees reminded to be respectful of others personal space.	1	3	3 Team Supervisors SR Health and Safety Coordinator
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Activity	Competition setup and teardown	Location	Soutnamptor	university	LIKEIIhood	Likelihood rating	Severity	severity rat	KISK rating	category	Tolerability			cany other	than to one of	e that the controls are		
	Alistair Lynn Josh Perriman		Start	End	Very unlikely	1	First Aid injury/illness	1	1-2	Very low	Acceptable	maintained.						
Assessors	Thomas Scarsbrook		00/00/00	00104100	the Photo State											n be implemented at		
A00600010	fill Barber Event dates 30/03/23 03/04/23 Unlikely 2 Minor injury/illness 2 3-4 Low								Acceptable		low cost (in terms of time, money and effort). sideration should be given as to whether the risks can be lowe							
												where appli	cable to a tol	erable leve	and prefera	ly accentable level		
												but the cost	s of additiona	risk reduc	tion measure:	should be taken into		
Date assessed	15/10/22				Likely	3	'3 day' injury/illness	3	5-7	Medium	Tolerable	defined time	e period.					
																isk. Risk reduction		
		me								measures s and it might	be necessary	to conside	rgently within er suspending	a defined time period or restricting the				
		activity								activity, or t	it might be necessary to consider suspending or restricting the ity, or to apply interim risk control measures, until this has been							
					Fairly likely	4	Major injury/illness	4	8-14	High	Tolerable	completed. additional c	eted. Considerable resources might have to be allocated to onal control measures.					
										5		Substantial	improvement	s in risk co	ntrol are nece	sary, so that risk is		
					Very likely	5	Fatality/disabling injury	5	15+	Very high	Unacceptat	reduced to	a tolerable or	acceptable	level.			
Who is at risk Competitors	Description A competitor (16-19 year old) who is involved in	a de la statu a ser de l																
Team Supervisors	A named Team Supervisor (responsible adult)		Lin the rick acti	vitv														
Volunteers	Someone working on behlf of Student Robotic			vity														
Third Parties	Someone not involved in the risk activity. This			. volunteers	. or event visito	rs.												
	,																	
Hazard	Description	Who is at risk	Likelihood	Severity	Risk Factor	Controls							Likelihood	Severity	Risk factor	Responsible perso		
njury while using manual	Inappropriate use of tools resulting in tools	Volunteers	3	3	9	Tools should only be	used when appropriate a	ind in the ma	nner they ar	e designed to	be used.		2	2	4	SR Health and Safet		
or power tools	slipping and/or breaking and thereby injuring the user or those nearby.	Third Parties				All use should be by Loose hair or clothin	a competent adult. a to be fucked in or remov	ved whilst on	erating tools							Coordinator SR Setup and		
	the user or those nearby. Loose hair or clothing to be tucked in or removed whilst op Safety gear to be provided where appropriate. First aid provision available to manage any incidents.														Teardown			
Clashis shaek from hollon.	Unsuitable use of battery powered	Volunteers	3				allable to manage any in ant to be used when appr			they are do.	inned to be .	d				Coordinator SR Health and Safet		
sources	equipment, or the use of damaged battery	volunteers	3	a	9 9	Damaged equipmen	t to be retired from use		i ule mannei	tiley are de:	signed to be t	seu.		3	-	Coordinator		
	No wires to be exposed on batteries or chargers. W voltage (<120VDC, <50VAC) electric													SR Setup and Teardown				
	shock															Coordinator		
Electric shock from mains	Unsuitable use of mains equipment, or the	Volunteers	2	. 4	4 8	Mains equipment and cabling to be appropriately rated and fused.							1	4	4	SR Health and Safet		
sources	Considence of a manufacture of the second												Coordinator SR Setup and					
	shock					Mains cabling to be:	secured down promptly, a	nd inspected	at intervals	for damage.	Signage to be	used when				Teardown		
	cabiling is not yet able to be secured down. All Studen Robotics mains equivalent used to be visually inspected before use.												Coordinator					
	Damaged equipment to be retired from use.																	
Injury from improper	Improper handling technique, or moving of equipment with insuffiecient people results in	Volunteers	3	3	9	Volunteers involved in manual handling trained and briefed. Manual handling only performed within an individuals ability.								2	4	SR Health and Safet		
manual handling	equipment with insufficcient people results in	individual handling causing personal Appropriate protective equipment used, if applicable.												Coordinator SR Setup and				
	iniury.											Teardown						
	Handling of equipment unsafe for manual	equipment unsafe for manual Any equipment over 16kg to be handled by multiple persons.									Coordinator							
	handling resulting in cuts or other physical injury.																	
	Nearby third parties getting injured by moving equipment, or crushed by dropped																	
	equipment, or crushed by dropped equipment.																	
Slips, trips, and falls	Obstructions or liquids on the floor resulting	Volunteers	3	4	12		ured down and inspected				here reasona	bly	2	2	4	SR Health and Safet		
	equipment. This can potentially result in Figure 2 and the second down and the second down and the second down and the second down.													Coordinator SR Setup and				
	bruises or broken bones. Carrying of large or heavy objects on the stairs to be kept to a minimum.													Teardown				
						Running is not perm	itted. trip bazards to be signed	and remove	d as soon as	nossible						Coordinator		
Battery failure - smoke fire	Any identified slip or trip hazards to be signed and removed as soc The lithium polymer (LiPo) batteries used Volunteers 1 5 5 All batteries to be charged in fire-proof bags and by trained volunte										1					SR Health and Safet		
battery failure - arrioke, file	within the robots have the potential if	Third parties		-		SR Volunteers to ide	ntify batteries showing si	gns of damag	e or swelling	and safely	dispose of the	m.		-		Coordinator		
	treated to ignite and become a self- taining fire. Smoke released from this												SR Setup and Teardown					
	combustion is potentially harmful if inhaled.								Coordinator									
Injury due to persons or	A person on the ground is injured by a Volunteers 3 4 12 Arena to be constructed and tested as per Method Statement, and will be subject falling from a height Third parties										inspection by	SR	1	3	3	SR Health and Safet		
objects falling from height	person or object failing from a height	i niro parties				Work at height only i	conducted by suitably trai	ned and equi	nned individ	necessary. Jals.						SR Setup and		
						Work at height only to be performed where absolutely necessary. Personnel clipped on where appropriate.										Teardown		
						Tools on lanyards wi	h where appropriate.									Coordinator		
	Head protection to be worn when at height or underneath ongoing work at height where appropriate								ite.									
	Areas in which work at height is being performed to be restricted. Physical barriers to be used where objects are at link of being pushed over the edge of barriers or ledge								ledges.									
						Leaning over barrier	s or ledges at heights not	permitted.		-		-						
						Objects are not to be Objects are not to be	e held over barriers or edge passed down from heigh	ges. hts where an	alternative re	oute is availa	ble.							
Injury to a person due to		Volunteers	2	5	10	Work at height only	conducted by suitably trai	ned and equi	pped individ				1	3	3	SR Health and Safet		
falling from height	themselves on the way down/on landing						to be performed where ab	solutely nece	essary.							Coordinator SR Setup and		
						Personnel clipped or Leaning over balcon	n where appropriate. ies or ledges at heights n	ot permitted.								Teardown		
																Coordinator		
Hearing damage from excessive noise levels	Exposure to sounds at too great a volume for an extended period causing damage to the	i nird parties	2	3	6	Avoid use of excess Noise levels monitor							1	3	3	SR Health and Safety Coordinator		
	listeners hearing						<u> </u>									SR Setup and		
																Teardown Coordinator		
Reaction to theatrical	Theatrical effects causing shock, or epileptic	Third parties	2	3	6	Theatrical effects to	be limited to the minimum	required for	setup and te	sting.			1	3	3	SR Health and Safeh		
effects utilised, such as lighting effects	(or similar) fits.					Clear announcemen are used.	t of theatrical effects to be	made imme	diately befor	ehand in are	as where the	atrical effects				Coordinator SR Setup and		
ingriting ellects						Flashing lights and s	moke to be kept to a mini	mum.								Teardown		
						Any flashing to be at	no greater rate than 4 fla	shes per sec								Coordinator		
Accidents due to fatigue from working long hours	Fatigue induce poor judgement resulting in	Volunteers Third Parties	3	5	15	Volunteers suspecte	d of excessive tiredness r red to take breaks. Oppor	estricted from	n activities th	at may be o	onsequently o	angerous.	1	2	2	SR Health and Safety Coordinator		
	unknown task-specific accident causing injury to the individual undertaking the task or					 Granteers encoulag 	jou to take preaka. Oppor	unity and sp		CCI DICARS						SR Setup and		
	those nearby. Severity set to max level 5 due to															Teardown Coordinator		
	unpredictability of what task may be affected.															Sourcimator		
Accidents due to being	Alcohol or drug induced poor judgement or	Third Parties	2	5	10	Alcohol consumption	prohibited on site.						1	0	C	SR Health and Safety		
under the influence of alcohol or drugs	erratic behaviour resulting in unknown					Anyone under the in	fuence of alcohol or illega fluence of medication that	al drugs will b	e escorted o	ff site.	ad from activi	ies that man				Coordinator SR Setup and		
						be consequently dar		impairs mei	judgement	o oe restrict	su nom activi	ico ular may				Teardown		
alconor or uruga	under the influence or those nearby. Severity set to max level 5 due to														Coordinator			