Student Robotics Risk Assessment Form

May 14, 2016

Activity being assessed: Student Robotics Kickstart

Persons at risk: Competitors, Team Leaders, Blueshirts

Location: Multiple Locations

Assessor's name: Andrew Busse

Responsible Persons: Sam Phippen (SC - Events); Rich Barlow (SC - Engineering);

Date of assessment:

1 Risks

The following risks have been considered for the Student Robotics Kickstart event. Further description of the meaning of risk ratings (presented in this section as $L \times S$) can be found in the next section.

As this activity is being run at multiple locations, local events will release an appendix to this assessment containing additional risks and control measures, and the building / area risk assessments. The event coordinator will also carry out a Point of Work Risk Assessment on the morning of the event, defining any additional risks that present themselves.

Hazard	**Control Measures**	**Responsible Person**	**Risk Rating**
Injury while using manual tools (Screwdrivers, Wire Snippers)	Student Robotics Blueshirts will supervise all use of tools and materials in the hacking sessions	SC - Events	1
Interaction with robots: electric shock, minor injury	No exposed voltages above ELV (120V DC, 50V AC) present on any boards, no stored energy above 5J (save the batteries – see below)	SC - Engineering	2
	All electronic boards undergo a full system check before delivery, and are delivered in suitably robust cases designed to contain component failures	SC - Engineering	
	Documentation related to kit usage (at https://www.studentrobotics.org/docs) must be clear, up to date, and reviewed once per year	SC - Engineering	
	Boards must remain in their cases.	Team Leader	
	Wiring to be inspected by SQEP before robots switched on: Polarities are correct, no exposed / frayed wire strands, colour coding is respected, wiring is kept tidy	SC - Engineering, SC - Events	

Hazard	**Control Measures**	**Responsible Person**	**Risk Rating**
Trip Hazard from trailing extension leads	Extension leads taped down and inspected regularly, kept away from walkways where reasonably practicable	SC - Events	1
Misuse of batteries	Charging to be performed in the exact manner described in https://www.studentrobotics.org/docs/kit/batteries. This will be done under direct supervision of SQEP	SC - Engineering, SC - Events	4
	Chargers and batteries tested, charging bags inspected before being delivered to teams	SC - Engineering	
	Documentation related to battery usage (at the above link) must be clear, up to date, and reviewed once per year	SC - Engineering	
	SQEP Blueshirts to quickly and safely dispose of any battery displaying signs of swelling, damage or other abnormality	SC - Events, SC - Engineering	
Allergies to fibres in Charging Bags	Use gloves (any type) to minimise contact between fibres and hand, if persons are known to be allergic to glass fibres.	Team Leader	1

2 Assessment Guidance

The risk ratings of the risks in the previous section are calculated by multiplying L, the likelihood rating, by S, the severity rating.

Likelihood	Likelihood rating
Very unlikely	1
Unlikely	2
Likely	3
Fairly likely	4
Very likely	5

Severity	Severity rating
First Aid injury/illness	1
Minor injury/illness	2
'3 day' injury/illness	3
Major injury/illness	4
Fatality/disabling injury	5

The following should be used to rate the risk and plan corrective action:

Risk Rating	Category	Tolerability	Comments
1–2	Very Low	Acceptable	No further action is necessary other than to ensure that the controls are maintained.
3–4	Low	Acceptable	No additional controls are required unless they can be implemented at very low cost (in terms of time, money and effort).
5–7	Medium	Tolerable	Consideration should be given as to whether the risks can be lowered, where applicable, to a tolerable level, and preferably acceptable level, but the costs of additional risk reduction measures should be taken into account. The risk reduction measures should be implemented within a defined time period.
8–14	High	Tolerable	Substantial efforts should be made to reduce the risk. Risk reduction measures should be implemented urgently within a defined time period and it might be necessary to consider suspending or restricting the activity, or to apply interim risk control measures, until this has been completed. Considerable resources might have to be allocated to additional control measures.
15 and above	Very High	Unacceptable	Substantial improvements in risk control are necessary, so that risk is reduced to a tolerable or acceptable level.