Risk Assessment: "Routes Into STEM" Outreach Day

Assessment Details

Student group:	Student Robotics (Southampton)
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Assessment date:	May 19, 2016

References

Additional documents or other sources of information that were referred to when preparing this risk assessment include:

- Guidance from the Health and Safety Executive, including manual handling procedures and case studies of risk assessment writing.
  `http://www.hse.gov.uk/risk/index.htm`
- H&S guidance from the Union Southampton website.
  `https://www.unionsouthampton.org/groups/admin/howto/protection`
- Risk assessments prepared for events run by Student Robotics in 2015.
  `https://github.com/srobo-southampton/risk-assessments/tree/master/old`

Activity Details

Date(s):	June 1, 2016
Time(s):	All day
Location(s):	Room 53/3028 (Mountbatten building)
Summary:	Between 15 and 30 local schoolchildren in Year 10 are attending a workshop organised by the Electronics and Computer Science department. The workshop involves a class led by members of Student Robotics Southampton and RoboGals Southampton Chapter, who will be referred to as *mentors*. The class involves programming small mBed-based robots to perform a simple task. The schoolchildren will be working on laptops provided by the department. An arena will be constructed by the mentors for the robots to operate in.

Risks

Hazard	Who may be affected and how	Control measures in place	Additional control measures	Risk level (/9)
Electrical equipment (robots, laptop power supplies)	Mentors or children could get electrical shocks or burns from faulty equipment.	• The robots are low power devices running at no more than 6 volts, so the chance of electric shock is very low. • The computing equipment is owned by the university and so will have electrically tested.	• The ESO[1] will verify that all wiring in the robots is sufficiently insulated.	2
Interaction with autonomous robots	Mentors or children could encounter minor injuries if the robots move unexpectedly.	• Robots are only to be tested under supervision. • When robots are switched on, they will be treated as though they could become active at any moment. • The robots do not have any moving parts besides the wheels, which are well guarded by the robot's chassis.	• The ESO will verify that the robots do not present any sharp edges. If any are found, they will be covered with thick tape to reduce the chance and severity of injury they could cause.	1
Use of manual tools during arena construction	Mentors could experience minor injury as a result of an accident or through improper use of tools.	• Any work requiring use of manual tools will be carried out by someone experienced with DIY tasks. • Care will be taken with sharp tools to ensure that minimal injury results in the event of an accident.	• No further action required.	2
Manual handling of heavy objects	Mentors could experience minor injury or back pains resulting from improper lifting methods.	• The HSE manual handling guidelines[2] are to be followed for all tasks involving heavy lifting.	• No further action required.	2

[1] Equipment and Safety Officer
[2] `http://www.hse.gov.uk/pubns/indg143.pdf`

Hazard	Who may be affected and how	Control measures in place	Additional control measures	Risk level (/9)
Obstacles on the floor, such as bags or trailing cables	Children or mentors may suffer minor injury as a result of tripping.	• Cables (primarily the laptop power supplies) will be routed underneath desks wherever possible. • The children will be instructed to keep all bags tucked underneath desks.	• No further action required.	2

Review

Reviewer name/role	Comments	Signed	Date

Assessment Guidance

Each hazard is assigned a number between 1 and 3 indicating the likelihood of the hazard affecting a person:

Low (1): May only occur in exceptional circumstances

Medium (2): Might occur in some circumstances

High (3): Will likely occur in most circumstances

Similarly, each hazard is assigned a number between 1 and 3 indicating the magnitude of the impact that the hazard would have, if it did occur:

Low (1): Superficial or minor injury. Can usually be handled by local first aid procedures.

Medium (2): Serious injury, possibly resulting in hospitalisation for up to three days. Complete recovery/rehabilitation could take several months.

High (3): Major or fatal injury. Requires extensive medical treatment, including at least three days in hospital.

The hazard's *risk level* is then calculated to be the likelihood rating multiplied by the impact rating. For example, a hazard that is likely to occur in almost all circumstances but only results in a minor injury would have a likelihood rating of 3, an impact rating of 1, and an overall risk level of $3 \times 1 = 3$.

These guidelines are based on those provided in Union Southampton's risk assessment template.