HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 1 of 10

1. Hazard Management Details – General	
This form relates to OHS Procedure – *Hazard Identification, Risk Assessment and Control (HIRAC)*	
School / Work Location:	**Ballarat Tech School (Fed College)**
Name of Person(s):	Liam Mudge
Date Conducted:	27/10/2023
Last Reviewed:	06/08/2022
Next Review Due:	October 2024

HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 2 of 10

Description of Use:

The Ballarat Tech School (BTS) delivers a range of STEM curriculum projects, some of these activities may be hazardous to user's health if safety procedures and lab etiquette are not followed.

This document assesses the risk involved with modular and construction kits designed to allow users to build their own electronics, robotics, and mechanical systems.

- Arduino/Hummingbird is an electronic component system where users can construct and control programmable systems.
- Basic Electronics use of solder/breadboard-based components to create electronic circuitry. This may require the use of soldering irons/wire cutters and wire strippers to create circuits.
- Pi-Tops are a Raspberry Pi computer with associated expansion board and electronic attachments.
- Rechargeable Battery Stations
- Little Bits Plug and play circuit components.

Summary of Key Risks:

(Refer to appropriate subsections)

- ENTANGLEMENT
- CHOKING HAZARD
- IMPACT AND CUTTING INJURIES
- ELECTRICITY
- SLIPS/TRIPS/FALLS
- TEMPERATURE

HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 3 of 10

Risk Assessment Matrix

Assessing OHS Risks

Risk assessments in matters of Occupational Health and Safety* are based on 2 key factors:

- The severity of any injury/illness resulting from the hazard(s), and
- The likelihood that the injury/illness will actually occur.

**Assessment of risk level based on likely severity and probability of harm*

		LIKELIHOOD			
		Very Unlikely Could happen, but probably never will	**Unlikely** Could happen, but very rarely	**Likely** Could happen sometime	**Very likely** Could happen any time
SEVERITY	Death or permanent disability	MEDIUM	HIGH	EXTREME	EXTREME
	Long-term illness or serious injury	LOW	MEDIUM	HIGH	EXTREME
	Medical attention and short-term incapacity	VERY LOW	LOW	MEDIUM	HIGH
	First aid needed	VERY LOW	VERY LOW	LOW	MEDIUM

HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 4 of 10

2. Documentation		
Relevant Legislation/Standards	**Y / N**	**Comments**
Key reference material:		• AS/NZS 3760:2022 In service safety inspection and testing of electrical equipment •

3. Hazards				
Hazards Inspected	**Initial Risk**	**Description of Risk**	**Control Measures**	**Residual Risk**
ENTANGLEMENT Can anyone's hair, clothing, gloves, cleaning brushes, tools, rags, or other materials become entangled with moving parts of the tools or materials?	Medium	• Long hair, loose clothing, rags, and jewellery may become entangled in the moving parts of equipment or components.	• Induction and Supervision. • Ensure hair, loose clothing, rags and jewellery is kept clear of moving parts when in use. • Hair ties/hair nets can be used to secure long hair. • Ensure inappropriate jewellery and accessories (e.g. bracelets) are not worn when operating equipment.	Low

HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 5 of 10

Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
IMPACT & CUTTING INJURIES Can anyone be crushed/cut/struck etc. due to: • Uncontrolled/unexpected movement of tools /workspace?	Medium	• Electronic devices such as motors, servos and actuators may collide with operators or other persons in the work area. • Tools may get caught and inadvertently dislodge/cause unexpected movement of heating element.	• Ensure operator's hands and body parts are kept clear of moving parts during use and maintenance. • Users inducted in to safe and best practice methods of use.	Low
• The tools tipping or rolling over?	Medium	• Inappropriate components may have unexpected results	• Ensure work pieces and tools are appropriately secured prior to operation. • Ensure cables kept clear to avoid inadvertent moving.	Low
• Inappropriate parts and accessories being used?			• Only use components/tools designed for the circuitry task at hand. • Do not use damaged components/tools	Low

HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 6 of 10

Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
ELECTRICITY Can anyone be injured or burnt due to: • Live electrical conductors? (*e.g.* exposed wires) • Working in close proximity to electrical conductors? • Access to electricity? • Damaged or poorly maintained electrical leads, cables or switches? • Water near electrical equipment?	Medium	• Exposure to electrodes, "hot" wires, power supplies and electronic components. • Damaged or frayed electrical cables pose an electrical hazard. • Exposure to electrodes/pins • Exposure to component parts on electrical circuit • Battery systems may produce risk of exposure to electrodes if not properly maintained/operated. • Liquids may cause electrical short circuit or fire/electrocution.	• Induction and Supervision • Operator to check for damaged electrical cables prior to use. • Only low voltage power sources used for electronic circuitry components. • Students to only work with components using low power supply. • Ensure equipment is regularly serviced, tested and tagged (if not hardwired) and appropriate isolation procedures (e.g. lock out tags) are in place. • No food or drink in the workspace.	Low

HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 7 of 10

Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
ERGONOMICS Can anyone be injured due to: • Poorly designed workstation? • Inadequate or poorly placed lighting?	Medium	• Design of workstation does not allow for adequate space to perform tasks. • Inadequate lighting may result in incorrect wiring/assembly	• Ensure workspace selected has adequate room to perform task unobstructed. • Ensure adequate lighting to perform task. Additional lighting may be required if ambient/room lighting is insufficient.	Low
SHEARING Can anyone's body parts be sheared between two parts of tool, or between a part of the tool and a work piece or structure?	Medium	• Improper use of tools such as wire strippers and side cutters may result in shear hazard.	• Supervision and induction into proper use of equipment. • Use cutting tools as directed	Low

HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 8 of 10

Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
SLIPS / TRIPS / FALLS Can anyone using the tool, or in the vicinity of the plant, slip, trip or fall due to: • Uneven, slippery or steep work surfaces? • Poor housekeeping, e.g. spillage in the vicinity? • Obstacles being placed in the vicinity of the tool?	Medium	• Poor housekeeping practices allowing the build-up of waste materials or failure to immediately clean up spills could result in a slip hazard. • Inappropriate placement of objects (e.g. spare materials, bags etc) in the immediate vicinity of equipment may result in a trip hazard. • Robotic Systems may travel unbeknownst to onlookers/other users of the space, causing a trip hazard.	• Ensure appropriate cleaning and housekeeping practices are maintained to minimise the risk of a slip, trip or fall. • Ensure robotic systems are monitored so they don't become a trip hazard.	Low
Choking Hazard Can anyone suffer choking/airways injuries from exposure to activities.	Medium	• Small components become lodged in airways if inhaled or swallowed	• Supervision and induction into correct use of components,	Low

HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 9 of 10

Hazards Inspected	Initial Risk	Description of Risk	Control Measures	Residual Risk
FIRE & EXPLOSION Can anyone be injured by fire? • Can anyone be injured by explosion of gases, vapours, liquids, dusts, or other substances?	Medium	• Damage or miss-use may cause fire, smoke, or explosion. • Batteries, components etc can pose a hazard if over charged/damaged.	• Supervision and induction. • Inspect components for damage before energising and only use components in good working order.	Low
TEMPERATURE / MOISTURE **Can anyone come into contact with objects at high or low temperatures?**		• Tools and components may be come hot when energised.	• Supervision and induction. • Don't pick up/move tools until they have had sufficient time to cool down.	

HIRAC Report

Title: Remotely Operated Aircraft/Drone Programs	Authorized By:
	Page Number: 10 of 10

4. Risk Assessment Signoff		
Authorised By: Albert Ferguson	Signature: A-Ferguson	Date: 16/01/2024