Risk assessment is a systematic process used to identify, analyze, and evaluate potential risks and uncertainties associated with a particular situation, project, or activity. It is a critical tool for decision-making and risk management in various domains, including business, environmental management, project management, and safety planning.

A general description of risk assessment involves the following key components:

Identification of Risks: The first step in risk assessment involves identifying potential risks and hazards that could impact the objectives, goals, or outcomes of a project or activity. This can encompass a wide range of factors, including external threats, internal weaknesses, and unforeseen events.

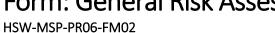
Analysis of Risks: Once risks are identified, they are analyzed to assess their likelihood and potential impact. This analysis considers the probability of each risk occurring and the severity of its consequences.

Risk Evaluation: In this phase, the assessed risks are evaluated to determine their significance and prioritize them based on their potential impact on the project or activity. Risks are categorized as high, medium, or low risk, helping decision-makers focus on the most critical issues.

Risk Mitigation and Control: After evaluating risks, strategies are developed to mitigate or control them. These strategies can include risk avoidance, risk reduction, risk transfer, or risk acceptance. Mitigation plans are put in place to minimize the likelihood and impact of high-risk events.

Monitoring and Review: Risk assessment is an ongoing process. Regular monitoring and review of the risk management plan help ensure that it remains effective and up to date. Adjustments are made as new risks emerge or as the project progresses.

Communication and Reporting: Effective communication of risks and risk management strategies to stakeholders is essential. Transparency and clear reporting allow for informed decision-making and a shared understanding of the risks involved.





Documentation: Comprehensive documentation of the entire risk assessment process is crucial. This includes recording identified risks, their analysis, evaluation, mitigation plans, and outcomes.

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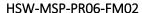
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Risk Assessment No.: 1	Date:	Version	Review Date:	Authorised by: Dulan Perera						
	3/11/2023	No.:1	4/11/2023							
Step 1: Enter information about the task, activity or health and safety issue, including the location and the people										
completing the risk assessment										
Reason for this risk assessment:										
	formation	L Ch	ange to existing wo	ork environment/task/object/tool						
☐ Report of injury ☐	Cyclic review									
☐ Identification of a health and saf	ety hazard	□ Otl	ner:							
Location (including building and roo	m): AD103	Assessed by: D	ulan Perera	HSR/worker representation:						
Description of task/activity/issue (if	necessary, obs	erve/analyse t	he task being perfo	ormed by different people at different						
times to capture variation in work f	low)									
This project involves the development	nt of an Environ	mental Sensor	Data Logger with S	DI-12 interface, using an Arduino Due						
microcontroller. The system integrat	es multiple envi	ironmental sen	sors, including the	BME680 sensor for temperature,						
humidity, pressure, and gas data, as	well as the BH1	750FVI sensor	for digital light inte	nsity measurements. The project aims						
to monitor and record environmenta	al data for variou	us applications	, such as weather m	nonitoring, environmental research, or						
industrial automation. The project ai	ms to develop a	robust and us	er-friendly environ	mental monitoring system. Implement						
data logging for long-term data stora	age and analysis	, Create a grap	hical user interface	for data visualization, Ensure system						
reliability, safety, and compliance wi	th environment	al regulations,	Serve as a versatile	tool for various applications, including						
research, industrial automation, and	education are a	also part of the	project objectives.							
Workplace conditions (describe env	ironment, layou	ut and physical	conditions – inclu	ding access and egress)						
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This project is completed in AD103 under the supervision of Dulan Perera. The workplace is adequately equipped with essential amenities. This includes well-structured workbenches, conveniently placed electrical outlets, sufficient and appropriate lighting, and effective ventilation. These provisions are fundamental to facilitate electronics assembly, sensor testing, and coding activities. The workspace has been furnished with critical safety equipment such as fire extinguishers, first-aid kits, and eye protection gear. In addition to providing these safety essentials, clear and comprehensible safety protocols is established and communicated to all project team members. Adequate training on the safe handling of electrical components and chemicals is indispensable. An orderly inventory of electronic components, sensors, and tools has been maintained which is vital.

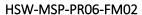
Hazards to cons	sider			Hazards to consider								
Electrical	Risk of electric shock	Fire Hazard	Overheating or electrical	Physical	Risk of physical injury,							
Hazards	or short circuits while		faults in components can	Injury	such as cuts or burns,							
	working with		pose a fire hazard.		when handling tools or							
	electronic				equipment.							
	components.											
Chemical	The BME680 sensor	Inadequate	If the sensors are not	Human	Mistakes made during							
Exposure (Gas	includes a gas sensor	Calibration	correctly calibrated, the	Error	assembly, wiring, or							
Sensor)	that may involve	and Testing	data collected may be		coding can result in							
	exposure to certain		inaccurate, which could		equipment malfunction							
	gases.		lead to incorrect		or data inaccuracies.							
	Risk of inhaling or		conclusions or actions.									
	coming into contact											
	with potentially											
	harmful gases.											

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Data Privacy	Risk of unauthorized	Power	Disruptions in the power	Budget and	Overruns of the project
and Security	access to sensor data,	Supply	supply may lead to data	Resource	budget may lead to
	which may contain	Issues	loss and system	Constraints	resource constraints
	sensitive information.		downtime.		and potential project
					delays.
Environmental	Improper disposal of	Exposure to	When working with	Handling of	The sensors themselves
Impact	electronic components	Dust and	electronic components or	Sensors	may have specific
	and waste materials	Particles	conducting maintenance,		handling requirements
	can harm the		there is a risk of exposure to dust and small		that, if not followed,
	environment.	1	particles that may irritate		could lead to inaccurate
	Risk of releasing		the respiratory system.		readings or damage.
	hazardous materials or				
	contributing to				
	electronic waste.				

Step 2: Risk rating – risk matrix and definitions

				Consequence	
		Minor 1	Disruptive 2	Significant 3	
	Almost Certain	Moderate	Major	High	
_	5	5	10	15	
Likelihood	Likely	Moderate	Moderate	Major	
þ	4	4	8	12	
el:	Possible	Low	Moderate	Major	
¥	3	3	6	9	
	Unlikely	Low	Moderate	Moderate	
	2	2	4	6	

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i	Rare	Low	Low	Low	
	1	1	2	3	

Likelihood						
Almost certain:	99% probability Could occur within 'days to months'					
Likely:	>50% probability Could occur within 'months to years'					
Possible:	>10% probability May occur shortly but distinct probability it will not Could occur within 'the next three to five years'					
Unlikely:	>1% probability May occur but not anticipated Could occur in 'five to ten years'					

Catastrophic: Multiple fatalities Multiple significant irreversible disabilities Systemic instances of
irreversible disabilities
Systemic instances of
mental health issues
Critical: Single fatality
Severe irreversible
disabilities
Widespread workforce
stress or clusters of mental
health issues affecting
delivery of services and
initiatives
Significant: Long term injuries /
disability
Short term hospitalisation
and rehabilitation
Workforce stress or
elevated levels of mental
health issues affecting
delivery of initiatives
Disruptive: Injury requiring medical
treatment
Sustained lost time
Mental health issues
impacting delivery

2	3	
	Risk rating priority	
Risk rating	Action	Recommended action time frame
High/Very high	Cease activity or isolate source of risk Implement further risk controls Monitor, review and document controls	Immediate Up to 1 month Ongoing
Major	Implement risk controls if reasonably practicable Monitor, review and document controls	Within 1 to 3 months Ongoing
Moderate	Implement risk controls if reasonably practicable Monitor, review and document controls	Within 3 to 6 months Ongoing

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Rare:	<1% probability	Minor:	Injury requiring minimal	Low	Monitor and review	Ongoing
	Occurrence requires		medical treatment or first			
	exceptional circumstances		aid			
	Exceptionally unlikely					
	even in the long term					
	future					
	Only occurs as a '100 year					
	event'					

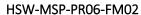
For a task or	Who can get	Uncontrolled	Controls required	Residual	Implei	Implementation of controls		
activity, list each step or For a health and safety issue, list the potential hazards	harmed and how?	risk score		risk score	Person/s responsible	Due Date	Indicate when completed	
Electrical	Team members	Likely-	Proper training	Possible-	All team	25/10/2023	26/10/2023	
Hazards	handling electrical	Disruptive	and handling of	Disruptive	member			
	components may	(4-2) = 8	electrical	(3-2) = 6				
	face the risk of		components,					
	electric shock or		following safety					
	short circuits,		protocols, and					
	potentially causing		using appropriate					
	injuries.		personal					
	Inadequate safety		protective					
	measures can lead		equipment (PPE).					

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	to electrical burns						
	or injuries.						
Chemical	Those handling the	Likely-	Follow safety data	Unlikely-	All team	25/10/2023	26/10/2023
Exposure (Gas	gas sensor may be	Disruptive	sheets (SDS) and	Disruptive	member		
Sensor)	exposed to	(3-2) = 8	guidelines for	(2-1) = 4			
,	harmful gases if		handling gases,				
	proper precautions		work in a well-				
	are not taken.		ventilated area,				
	Harm can include		and use gas				
	respiratory issues		sensors in				
	or chemical burns.		accordance with				
			their				
			specifications.				
Data Privacy and	Failure to	Likely-	Implementing data	Possible-	All team	25/10/2023	26/10/2023
Security	implement robust	Significant	encryption, access	Disruptive	member		
,	data security	(4-3) = 12	controls, and	(3-2) = 6			
	measures can		adhering to data				
	result in		security best				
	unauthorized		practices.				
	access, data						
	breaches, or						
	misuse of sensitive						
	data. Harm can						
	extend to privacy						
	violations and legal						
	consequences.						

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Environmental	Improper disposal	Likely-	Responsible	Possible-	All team	25/10/2023	26/10/2023
Impact	of electronic	Critical (4-4)	disposal and	Significant	member		
'	components and	= 16	recycling of	(3-3) = 9			
	waste materials		electronic				
	can harm the		components,				
	environment. This		following				
	can lead to		environmental				
	environmental		regulations and				
	pollution and		guidelines.				
	ecosystem						
	damage.						
Fire Hazard	Overheating or	Possible-	Fire safety	Possible-	All team	25/10/2023	26/10/2023
	electrical faults in	Minor (3-1) =	measures, proper	Disruptive	member		
	components can	3	circuit design, and	(3-2) = 6			
	pose a fire hazard.		monitoring for				
	Inadequate fire		overheating.				
	safety measures						
	and improper						
	circuit design can						
	lead to fires. The						
	potential harm						
	includes property						
	damage,						
	equipment loss,						
	and safety risks to						
	team members.						
	Fire can result in						

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	severe injuries, damage to the workspace, and disruption of the project.						
Inadequate Calibration and Testing	Failure to calibrate sensors properly may lead to inaccurate data. Inaccurate data can result in incorrect decisions or actions in environmental monitoring and research.	Possible- Significant (3-3) = 9	Rigorous testing and calibration procedures, regular sensor maintenance, and data validation.	Possible- Disruptive (3-2) = 6	All team member	25/10/2023	26/10/2023
Power Supply Issues	Disruptions in the power supply can result in data loss and system downtime, affecting data collection and research.	Likely- Critical (4-3) = 16	Implementing backup power sources and uninterruptible power supplies (UPS).	Possible- Disruptive (3-2) = 6	All team member	25/10/2023	26/10/2023
Exposure to Dust and Particles	Team members may be exposed to dust and small	Likely- Disruptive (3-2) = 8	Wearing appropriate respiratory	Unlikely- Disruptive (2-1) = 4	All team member	25/10/2023	26/10/2023

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	particles while handling electronic components, which may cause respiratory irritations or discomfort but		protection and maintaining a clean workspace with proper ventilation.				
	usually have a						
Physical Injury	lower impact. Project team members are at risk of physical injury, such as cuts or burns, when working with tools and equipment. These injuries can be the result of accidents during soldering, wiring, or handling tools.	Possible- Minor (3-1) = 3	Proper training in tool use, maintaining a clean and organized workspace, and wearing safety gear as appropriate.	Unlikely- Minor (2-1) = 2	All team member	25/10/2023	26/10/2023
Human Error	Mistakes made during sensor assembly, wiring, or coding can lead to equipment malfunction or	Likely- Critical (4- 3) = 16	Training, quality control processes, and regular reviews of work.	Possible- Disruptive (3-2) = 6	All team member	25/10/2023	26/10/2023

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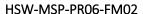
	data inaccuracies, potentially affecting project outcomes and data quality.						
Budget and Resource	Overrun of the project budget can	Possible- Significant	Careful budget planning, regular	Possible- Minor (3-1)	All team member	25/10/2023	26/10/2023
Constraints	lead to resource constraints, causing delays or an inability to complete the project. Harm extends to project management and team morale.	(3-3) = 9	financial monitoring, and seeking additional funding sources if needed.	= 3			
Handling of Sensors	The sensors themselves may have specific handling requirements that, if not followed, could lead to inaccurate readings or damage.	Likely- Significant (4-3) = 12	Carefully following manufacturer guidelines and documentation for sensor use and maintenance.	Possible- Disruptive (3-2) = 6	All team member	25/10/2023	26/10/2023

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Step 4: Sign off and acceptance

Your signature below indicates you have read and understood the above risk assessment and will adhere to the controls at all times. Should any unexpected situation arise that hasn't been identified above, please seek assistance from your supervisor/manager contact immediately.

Name	Signature	Date	Name	Signature	Date
Md Redwan Ahmed	Redwan	5/11/2023			
Zawad					

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