



RISK REGISTER





Academy of Robotics



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Understanding The Risk Register

A risk register is a document used as a risk management tool and to fulfill regulatory compliance acting as a repository for all risks identified and includes additional information about each risk.

As well as the risks identified in our safety case, this document sets out and better describes how we have mitigated said risks.

1. Risk Category – This is where we categorize the risk. Using these categories helps tease out likely risks and groups them into relevant categories for future reference.

2. Risk Description – A brief description of the potential risk.

3. Risk ID – This is a unique identification number used to identify and track the risk in the risk register. Elements 4 to 6 record the results of the Risk Analysis phase.

4. Project Impact – A description of the potential impact on the project as a result of the risk. achieved.”

5. Likelihood – The estimated likelihood or probability that the risk will occur at some point and become a project issue. occurrence as “High.”

6. Consequence – The potential consequence or impact of the risk if it did become a project issue.



Risk Name	Associated WP	Description	Potential Impact	Probability	Total Risk Score	Owner	Mitigation Plan
Hardware breakdown/malfunction on KarGo autonomous vehicle	WP2	This could potentially pose a risk to the trial and larger project itself if the vehicle suffers a fault either during or before the trial. To mitigate this contingency during the trial, we will have two senior mechanics (who have contributed to building the actual vehicle) and a mechanics engineer present with their tools for any quick repairs. Before any operation on public roads the vehicle will go through a thorough safety check. In the worst possible outcome that the vehicle suffers a serious fault which cannot be fixed in time we will try and postpone the trial as much as possible to allow time for the repair. If even this is not an option then we shall arrange an alternate vehicle (e.g Prius) which will be kitted out with sensors, cameras and on-board computing. The trial and testing runs will be carried out in this modified vehicle instead. However we do not see this happening as the vehicle has performed reliably till date at various events/demonstrations.	4	2	8		Yes
Data Loss	WP3, WP4	All results, software commits, edits, documentation, image folders will be backed up in relevant on-line and off-line storage devices. As a policy backups will be committed periodically and/or subject to a major new commit/draft.	5	1	5		Yes



Risk Name	Associated WP	Description	Potential Impact	Probability	Total Risk Score	Owner	Mitigation Plan
Software Corruption	WP3	This can be an issue during test or trial runs, where vision, data-logging software on board the vehicle's computer may corrupt/crash. For this we will have a backup on-board computer that will carry a duplicate version of the software, such that it can be hot-swapped with the crashed/corrupted computer during operation.	3	1	3		Yes
Inaccurate predictions of Vision Modules	WP3, WP4	This will stem from inaccuracies in the data annotation of the route surveys which is used for 'training' the vision/perception modules. The outcome of WP3 and results/analysis outlined in WP4 will be undermined if the detection accuracy of these modules is poor. To mitigate this we have a clearly defined data annotation procedure (will be outlined in WP1.1); wherein the labels created by the annotators go through a thorough check by atleast one designated senior team member before being integrated into the training pipeline. Moreover we have identified alternate architectures for these modules which can be easily implemented if the original architecture/configuration does not yield satisfactory results.	2	2	4		In Dev
Road Work/Closures	WP1, WP2, WP4	This could affect surveying, test and trial-day delivery runs that we intend to carry out. To mitigate this we shall a) Identify possible alternate routes and train the vision modules of WP3 on them. In case of road closures we will have the option of using these alternate routes. b) Working with our partner EUROVIA to identify possible junctions/spots where such a closure may be possible and plan alternate routes/diversions accordingly. c) Work with local authorities to ascertain if any road closures are being planned/likely for our dates of interest.	3	2	6		Yes



Risk Name	Associated WP	Description	Potential Impact	Probability	Total Risk Score	Owner	Mitigation Plan
Cost overruns	WP2, WP3, WP4	The man hours stated in this project for WP3 is much less than what would be required usually. We are able to produce these deliverables with relative less cost because of an existing code base which can be adapted to for this project. The main developmental challenge would be to optimize, fine-tune and create production ready versions of these modules. Because this is an essential work task tied closely with our business goals beyond this project, any cost overruns on this head however unlikely will be covered by us.	3	1	3		Yes
Accidents/ Collisions during Survey/Trial	WP1, WP2, WP5	Drives for testing and configuration (of sensors, controller board) will be carried out in designated test areas in the factory where the vehicle is housed during normal hours. All drives will be carried out by one of the two certified mechanics or experienced personel. Any drives on public roads (including for trial) will be carried out on schedule pre-planned day/time-slots. A hard speed limit will be imposed on the car for duration of the project for added safety measures.	4	1	4		Yes





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