

## Risk Assessments

<u>Scope</u>							
Identified Risk	Description	Potential Impact (High = -2 Medium = -1 Low = 0)	Likelihood (High = -2 Medium = -1 Low = 0)	Risk Ranking (out of 5) (5 – Potential impact – Likelihood = Ranking)	Mitigation/ Contingency plan	Indicators	Did we encounter this issue?
Expanding requirements	- too many requirements are accumulated and cannot be completed according to schedule	High	Medium	2	- Frequent meetings with clients and team to make sure all requirements are known - Rank each requirement and start cutting “not as important” requirements	- list of requirements is growing faster than being checked off/completed for a prolonged period of time	- Yes, however, we followed our mitigation plan by using our cut list
Poor change control	- newly introduced code may break the program to a state that it will not even compile	High	High	1	- use version control and back up of working sates	- the program will not compile when new code was introduced	- No, we only committed small chunks of tested code
<u>Technology</u>							
Limitations of GPS	- the physical GPS hardware available is inadequate in terms of performance (ex: precision/accuracy, may not track elevation, poor signal strength, etc...)	Medium	High	2	- Try to find a work around the limitations (ex: use wi-fi points to track the user’s location) or simply resolve to using a static map	- GPS does not function as planned and cannot track the user	- Yes, we do not support live gps tracking (we only support gps tracking the starting position, when outdoor).
Lack of map data	- the path finding algorithm will not find the best route all the time or will give inaccurate paths (such as going through a restricted access hallway)	Medium	High	2	- Do our own survey to see if a normal student will get access or contact building management to get that information (if we can get permission)	- the route given may go around buildings or take a long route when there is a clearly shorter path	- Yes, we did not have any unique identifiers for each stairs, doors, or elevators at first. We had the data changed for the stairs and elevators, however, doors leading to outside do not have any correlation with the google map’s latitude and longitude values, so we do not know where the algorithm exits an interior building and where it starts when it is outside (we had to collect this data manually).
Cross-platform compatibility	- it may not work the same on all operating systems or even browsers	Medium	Medium	3	- Develop using worklight/phonegap to develop a mobile application - Use HTML5 to develop a web application for a browser	- graphical glitches - will not launch - browser/device does not run the application as intended	- Yes, we have some minor graphical glitches in mobile view and it does not work on Android
Do not have access to the API	- cannot use any of the API available, resulting us creating one	High	Low	3	- Make sure we have access to the API’s and keep in contact with the clients	- cannot use any of the API’s	No, we got access to the API.

Incorrect/flawed map data	- values are not correct or relation between points are not represented properly	High	Low	3	- contact the customer or data provider to the data fixed	- algorithm does not work for certain parts of the map	Yes, the door and elevator identifiers are mislabeled (ex: the stairs identifier for the first floor does not match the identifier on the second floor; this makes the algorithm using the wrong staircase.
Personnel							
Missing expertise	- no one knows how to something	High	Medium	2	- do research on how to do/use something that we need	- No one can propose a solution to a problem or a way to complete a task	- Yes, we assigned a research task on a topic needed and that person becomes the "specialist" on that topic
Loss of trust / faith	- Team members and clients do not trust each other or does not listen	Medium	Medium	3	- Frequent team meetings to keep track of everyone - Schedule bi-weekly meetings with the clients to inform them of the teams progress	- Communication cease to exist or is greatly hindered - Members are kept out of the loop of what is going on - Certain members are taking on more tasks than assigned or doing other's tasks	- No, we kept each task well documented and we worked together in sub-groups with most/all members present
Argument between team members	- a heated disagreement between members splitting the group up	Medium	Low	4	- keep a cool temper and open mind for suggestions - do not try to assert superiority upon others (ex: claiming your ideas are always better, trashing other's suggestions/ideas in a crude way)	- Heated arguments leading to someone leaving the meeting or refusal to work with one another	- No, this did not occur
Loss of team spirit	- Morale gets low due to lack of progress	Medium	Medium	3	- setup team spirit building events (ex: meetings that takes place in a more informal environment; such as a pub	- Extreme stress for team members or loss of interest in the project	- Yes, however, we recovered quickly after group meetings taking place at the RATT
Schedule							
Not enough time	- too many requirements or certain requirements will take too long to implement	High	High	1	- cut down the number of requirements - plan realistic deadlines and always try to allocate more time than needed (give a buffer) - assign more members to complete a task	- deadline is coming up and progress is looking grim	- Yes, we had to go into our cut list, our path finding does not work for all cases, and apparent bugs do exist
Conflicting schedules	- cannot meet up as a full team or a full team with all the clients present	Low	High	3	- take meeting minutes every meeting, so that every non-present member will know what was done/went over during the meeting - have the clients setup time slots that can allow us as a team to work our schedules around - have a dedicated time slot, where all team members have no conflicting schedule (ex:	- incapable to get all group members together - incapable to get all group members and all clients together at the same time	- Yes, but most of us had Tuesday and Thursday off or a lighter schedule. Also, we had the Friday class time for a set team meeting.

					Friday class slot)		
<u>Client</u>							
Lack of feedback	- no feedback was given or very little useful feedback being received from the client	Medium	Medium	3	- Ask the client for constructive feedback frequently	- no feedback was given or very little useful feedback being received from the client	- No, our clients gave us plenty of feedback and advice for our project
Availability	- client is not available for meetings or questions	High	Medium	2	- Get the client's preference for form of contact (ex: phone, email, in person, etc...) - Have the client give us their available time schedule, so that we can work around it	- delays in email replies - cannot schedule a meeting time	- No, they setup meeting slots via doodle and invited us; we then input our availability and they email a finalized meeting time that will accommodate as many of us as possible.
<u>Others</u>							
Location	- meeting location maybe hard for all members to get to (ex: lack of transportation)	Medium	Low	4	- Setup locations where we all can get to (ex: on campus) - Be open for teleconferencing	- Certain members are not able to attend meetings due to location	- No, the meeting location was on North Campus, however, it was relatively hard to find the first time.
Natural disaster	- some unexpected natural disaster occurs	High	Low	3	- Back up our data in multiple locations - Try not to have all members in one location unnecessarily	- Multiple team members are harmed at the same time due to a natural disaster	- No, none occurred
Loss of interest	- members stop caring for the project	High	Medium	2	- Keep all members motivated all the time - Try not to swamp members with too much work - Build up team spirit	- Members start to purposely give poor quality work - Members skip out meetings - Lack of input from members	- Yes, we were swamped with work from other courses as well, so we could not put all our effort solely into this project. Also, there were some management issues early on contributing to this issue.
Github failure	- Github stops working and we are unable to access the master copy from the github servers	High	Low	3	- Have each member keep a copy of the project - Back up the data using multiple sources (ex: github and dropbox at the same time)	- No one can sync with github	- No, github worked fine for the duration of this project