Batteries

The following tables and justifications are the basis for the decision making process of selecting a suitable batteries for Roadie.

Decision Matrix

Justifications

Cost

This values for cost of the batteries were obtained by giving the most expensive battery a score of one, and the least expensive battery a score of five. (more to come!!)

Cost was given a weight of % as the cost of items are a very important factor in any budget.

Power

The values for power of the batteries were obtained by a few factors being the voltage of the batteries, the discharge rate, and watts per hour. The voltage of the batteries are a key part so we do not fry our motors and microcontroller when using it with the batteries, and we must have enough voltage to power everything. The discharge rate and watts per hour are used to calculate how long the batteries will last given the max output of the batteries.

Power was given a weight of % as the power of the battery dictates how long Roadie can run without having to spawn or charge the batteries.

Safety

The values for safety of the batteries were obtained by factoring the risk of using each battery type and the environmental impact each type of battery will have. The risk of usage of a battery type rates to how the battery will react to mishaps happening. This could be dropping, shorting out, or overheating the batteries. The environmental impact of each type of battery depends on what the battery is made out of, since most batteries contain some type of heave metal in them that is harmful to humans and the environment. [1]

Safety was given a weight of % as the safety of the team and the environment when working on Roadie are important aspects of the project.

http://www.uwsa.edu/ehs/environmental-affairs/waste-management/batteries/