Risk and Mitigation Document

## Schedule Risks

* Long Term Incapacitation of team member
  + Severity: Severe
  + Probability: Extremely Low
    - Mitigation: Currently No plan in place for this contingency.
* Short term illness of Team member
  + Severity: Moderate;
  + Probability: Moderate
    - Mitigation: could potentially delay project, likely to require additional work by other team members of accommodate
* Project interruption due to other obligations
  + Severity: Low
  + Probability: High
    - Mitigation: Likely to require modification of meeting times and schedule flexibility on behalf of all team members. Record meeting minutes and develop meeting agenda. Schedule regular weekly meetings.

## Scope Risks

* Incorrect Interpretation of Design Objectives
  + Severity: High
  + Probability: Low
    - Mitigation: Clarify misconceptions in project scope should they arise, modify design as necessary.
* Failure to Communicate
  + Severity: Moderate
  + Probability: Low-Moderate
    - Mitigation: Frequent and thorough team meetings, documentation of team progress and access to said documentation.
* Lack of applicable experience and knowledge.
  + Severity: Moderate
  + Probability: High
    - Mitigation: Attend workshops and split up responsibilities. Spend time learning required information and collaborate.
* Failure to set reasonable objectives
  + Severity: Moderate
  + Probability: Low
    - Mitigation: Frequent team meetings that evaluate team progress.

## Resource Risks

* Poor Time Management
  + Severity: Very High
  + Probability: Unknown
    - Mitigation: Institute rigorous standards and hold members accountable to such standards.
* Equipment Failures
  + Severity: High
  + Probability: High
    - Equipment and materials are likely to fail. If this happens more must be acquired. To mitigate this, careful prototyping and thoughtful designs should be prioritized. To avoid large scale catastrophes; compartmentalize the design process.
* Embezzlement of team resources
  + Severity: Very High
  + Probability: Very Low
    - Mitigation: It is the opinion of the group that this will likely not be a problem
* Civil unrest in Qatar leads to regime change and team member becomes Emir of Qatar
  + Severity: Very High
  + Probability: Infinitesimal
    - Mitigation: After extensive and heated discussion, it was decided that no contingency would be developed to mitigate this risk.
* Uneven distribution of group work
  + Severity: Moderate
  + Probability: Moderate
    - Mitigation: Scrum Board, frequent team meetings.
* Purchasing incorrect materials
  + Severity: High
  + Probability: Low
    - Mitigation: Team Communication.
* Unavailability of materials
  + Severity: High
  + Probability: Low
    - Mitigation: flexibility and creative design. Plan design around available materials

Resource Document

Budget is $200 USD

Note: Costs are estimates at this point

## Tangible Resources

* Arduino microcontroller
  + Arduino IDE
* Computers for development of Arduino software
  + 6 Computers
* Super Absorbent Polymer
  + Don’t Have
  + Cost: ???
* Materials to create saline solutions for tests and prototyping
  + Likely going to need salt (Assume NaCl)
  + Beakers/Cups
  + Cost: $5.00
* Scale for salt measurement
* Materials to Build physical components of device
  + Cost: ~100 USD
* Tools
  + Makerspace
  + Toolbox (Andrew)
* Github Repository/Organization
  + <https://github.com/DesignGroupB9/MiniProject1>
  + Free

## Intangible Resources

* People
  + Tanner Finney – Chemical Engineering
  + Dave Robins – Computer Science
  + Andrew Johnson – Civil Engineering
  + Jacob Rankin – Chemical Engineering
* Work Locations
  + Library
  + Makerspace