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| Project Number: 0005 | Project Name: Organic Garden Automation |

## Document Revision

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| **Date** | **Revision** | **Primary Author(s)** | **Notes** |
| 05/23/18 | 00 | Joshua Williams |  |
| 5/29/18 | 01 | Joshua Williams | Made user needs and engineering specifications more specific |

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| **User Need** | **Engineering Specification** | **Notes** |
| Must turn on one valve sequentially every 15 minutes which pumps water to the gravel beds, other valves are off | Software developed that turns on one valve every 15 minutes, turn off the valves for remaining 45 minutes of the hour, only one valve on at a time | Could write code so that every 15 minutes the sequential valve is turned on using if statements and counters |
| Pump water to gravel beds during only the day | Run pump from 7 am – 7 pm |  |
| Measure dissolved oxygen levels | Sensor measuring dissolved oxygen levels that is connectable to a controller and records values |  |
| Turn on sprinkler system when dissolved oxygen is too low in water | Software program that takes value from sensor, when level is below 4 mg/L turn on sprinklers, when level is above 7 mg/L turn off sprinklers | Could write code so that dissolved oxygen level is checked every time valves are modified |
| Notify when oxygen sprinklers are turned on/off | Software that sends some sort of message whenever sprinklers are modified |  |
| Measure water level in tank and turn on a valve or pump that fills the tank when it is too low, send a tweet to notify | Sensor that measures the water level | Could place sensor at water level, whenever does not sense water turn on pump |
| Fill the tank when water level is too low | Turn on some sort of pump that allows water to flow into tank when water level is measured as too low, turn off pump when water high enough | Could write code so that water level is checked every time valves are modified |
| Notify when water level pump is turned on/off | Software that sends some sort of message whenever water level pump is modified | Software not necessary for pump but necessary for notification |