Project Deliverable B: Needs Identification and Problem Statement

GNG 1103 – Engineering Design

Faculty of Engineering – University of Ottawa

Team # ProjC 4

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Problem Statement

After meeting with our clients on January 26th, a number of current problems and criteria were laid out regarding our client's current hydroponics system. We as a team will be laying out these problems, so that in the future when designing our prototypes we will have a clear understanding of what is needed and expected from our clients - a reliable and cost-efficient solution for their hydroponics vegetation production systems.

Clients' Needs and Wants

During the session, our clients listed out a few problems that they were having with their current model. Regarding the plant row, the system has trouble draining

properly, leaving behind some amount of residual water, which can be unhealthy for the plants in the long run.

Moving on to our clients current water distribution system, it requires the user of the system to refill the 75L reserve, which involves many trips back and forth with buckets to fill the reserve. Thus, making the process time-consuming and inefficient. Another problem faced by our clients is the fact that when the reserve is running low on water, there is nothing in the project that is there to alert the users of this situation. The system also leaks substantially when used by the user.

Another set of problems faced by the user are the current dimensions of the system. Due to the current dimensions of the system, it inhibits use of the system by younger and disabled students. This is due to the system being too tall. The dimensions also make the system unwieldy to move around where they need it to go. Its height also stops the students from taking the system in the elevator. This is a problem as mobility from classroom to classroom is key. In the system's current state, it is very difficult to move from place to place by the students who are utilising the system due to its unwieldy size, poor wheels on the bottom, and the lack of a proper place for students to maneuver the system from.

Finally, our clients also want to integrate automatic watering and lighting systems, where they would be toggled on and off at a specific time period. These are needed when human interaction is not available, especially on holidays.