Project Deliverable F: Prototype I and Customer Feedback
GNG 1103 – Engineering Design
Faculty of Engineering – University of Ottawa

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Introduction:

The first prototype although it being only tape and cardboard plays a pivotal role in the creation of the final project. It brought the team together for the first time as a whole in the creation of an actual object, allowing for the foundations of teamwork to be set which will be then later built upon.

Purpose of the test:

The purpose of this prototype was to learn more about the prototype's functionality through creating a model of what we envision it will look like. This prototype will allow us to see if there are any simple physical issues with our design, such as; attachments being too heavy or there being no space for them or other issues along that line. This was tested as the materials used in the Bowie robot and the attachments are approximately the same wight and we used cardboard to represent both of these materials and nothing toppled over, proving that the attachments were not too heavy or out of place.

Dependencies of the test:

The results of the test have to meet the target range and specifications for each parts. For example, the grass seed hopper needs to have a capacity of carrying a volume of 10cm by 10cm by 10cm of seeds and is able to drop the seeds at a rate of being able to plant in an area of at least 0.000001 meter cube in an hour.

The tests have to be done before building the next prototype so that further improvements can be made while building the new prototypes. The tests should also be be done before the next client meeting for communication and acquire feedbacks.

Testing Method:

Seeing that the physical properties of the first prototype and observing if there are some mistakes of structure existing. Since the first prototype is made by cardboard, the actual functions cannot be tested properly so far. But from the aspect of mechanics, we are able to estimate if the attachments will be functioning. After the final design is generated, we can apply loads on the robot, then figuring out the working ability of attachments.

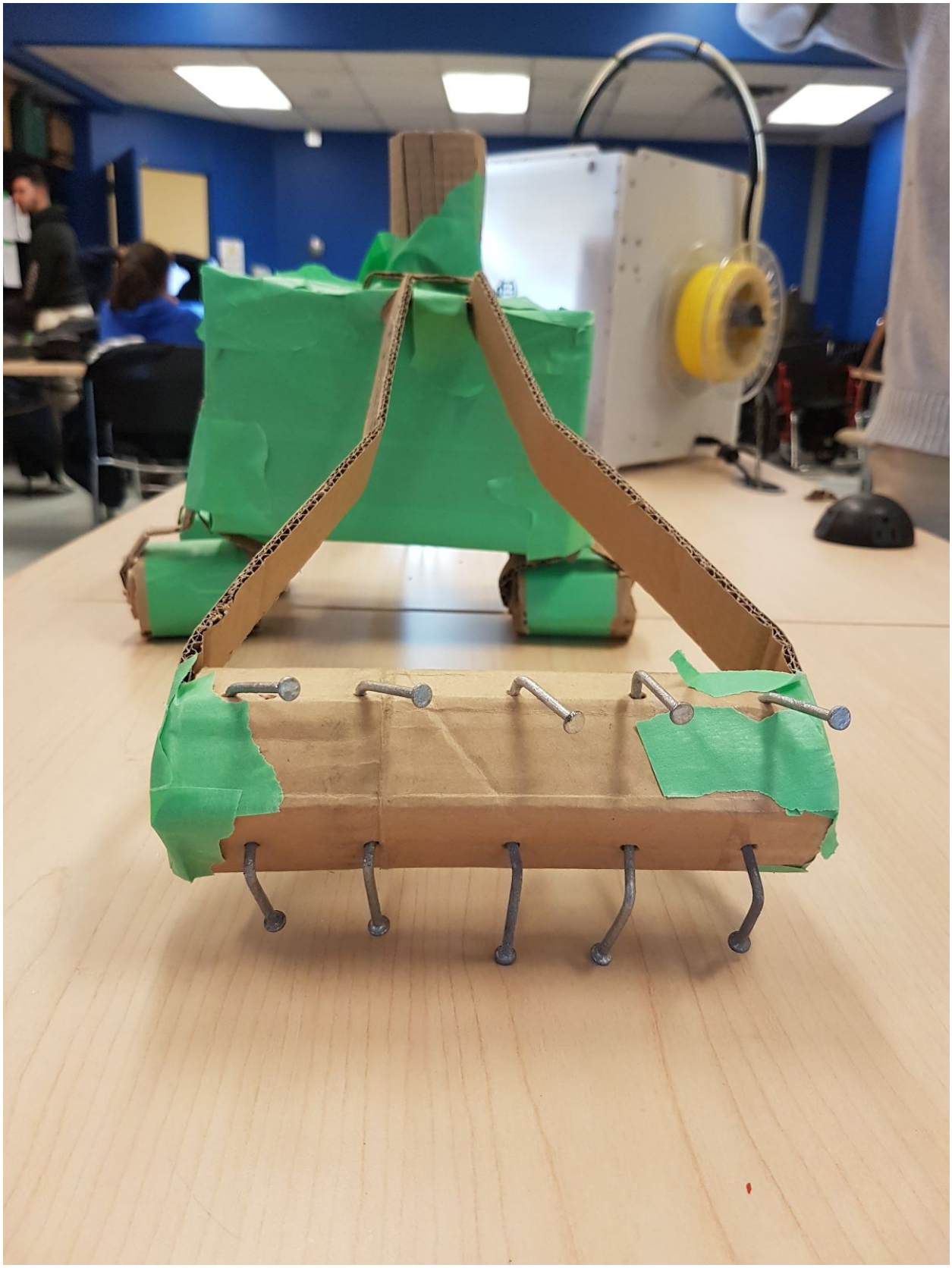
Design Concept:

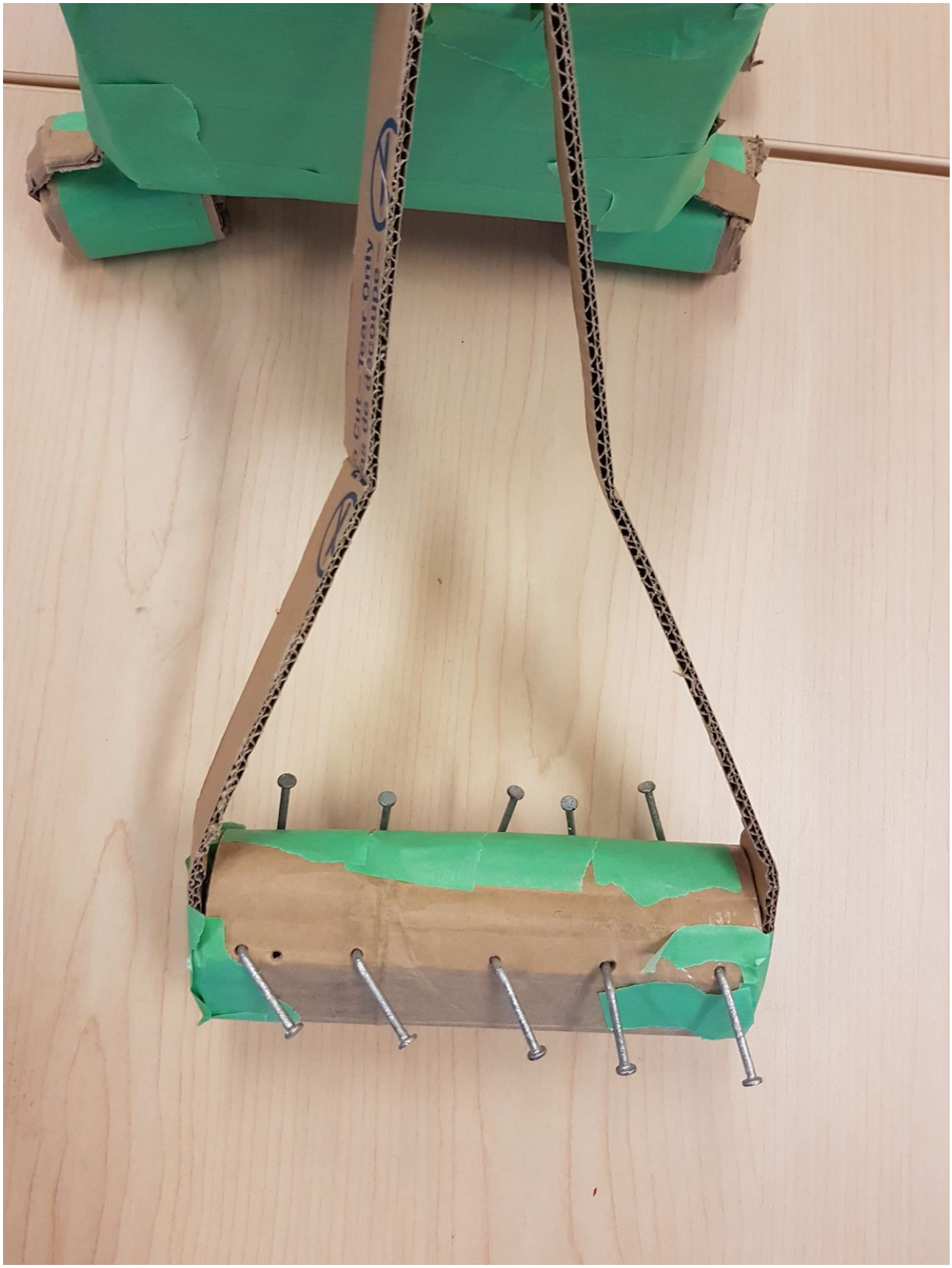
The design of said prototype is one that we thought much about in theory and have finally put to the test. It is in very early stages of course but the visualization was very much needed for the later prototypes of the attachments to follow some sort of concise shape. This is just a stepping stone for the prototypes to come so the design might have to have slight changes as we begin to use different materials facing a variety of issues.

Conclusion:

Prototyping is the most important part of any designing project. It is what allows you to cut through ideas that seem to work, to the ideas that will definitely work. However this prototype had minimal testing as it was more so to act as a good visual aid for the group for the forthcoming prototypes. It did however test how the weight of the attachments would affect Bowie. These tests have allowed us to come up with more ideas on how to improve our design.

Customer Feedback:



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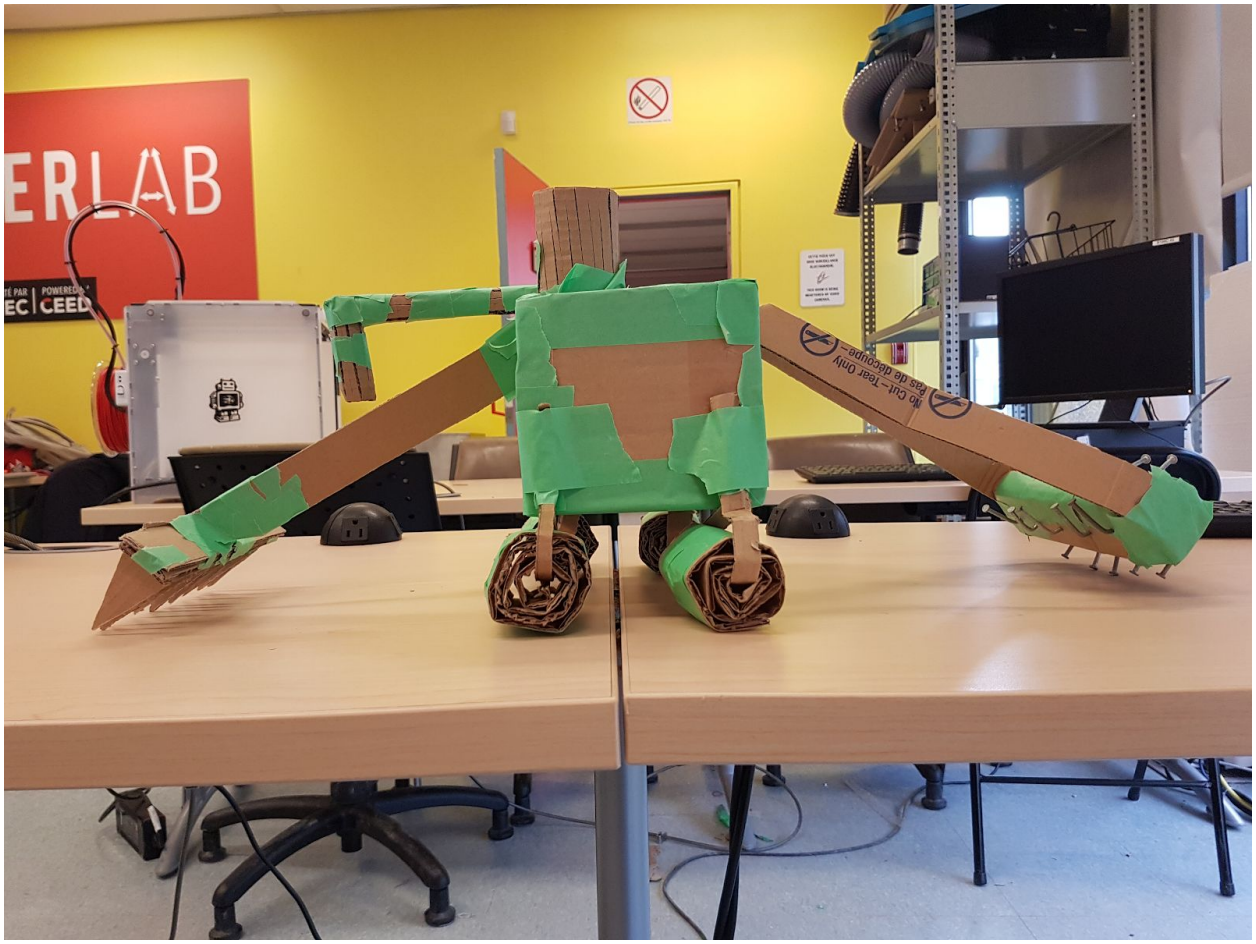
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