

Winta Semere - Industrial Design

### Project Summary/Skills

The Garden.R is a drone that shoots out seeds using a camera system to scan a given perimeter in order to make planting easier and less straining on your body. The Garden.R has a container inside that holds up to 100 seeds and through the use of gears, a seed falls through the seed hole into the bottom compartment of the drone where the CO2 cartridge shoots the seed into the dirt for successful germination.

In order to design this drone, I mainly used the revolve, mirror, and extrude tools. The top, middle, and bottom are three separate components that fit together in a lid like manner and all three were modeled using the revolve tool. The wings and propellers were created through extrusion and circular pattern.

As you go further into the presentation, you will see the inner compartments where I used other tools in SolidWorks such as fill pattern, surface thickening and cutting, and more.

The Garden.R is designed to be a shortcut to planting fruits and vegetables for those who enjoy planting at home.



## Mood Board





















### Product Analysis



# Concept Sketch



#### Design

In this shot, the Garden.R is disassembled to reveal the inner component.

1. Here we see the seed holder, and once you twist off the top, you will find a brush screwed onto a threaded rod and held in place by a hex nut, a rubber mold, and under the rubber mold is a gear that turns the seed plate.

(See page 7 for disassembled view)

2. Now, we see the middle body of the drone is seen with its wings and propellers as well as the camera that is used to scan the perimeter for planting.

3. In the back, you see the bottom attachment to the drone where the tube and CO2 cartridge are found. Once the seed falls through the aligning holes of the seed holder and middle drone body, it falls through the tube and is shot down through the attached CO2 cartridge.

4. To the right, we see the top lip of the drone. In the top section of the drone, you are able to store extra seed plates by locking it onto the gear and holding it in place on a threaded rod using a hex nut.





### Design

In this shot, the seed holder found inside the Garden.R is disassembled to reveal more pieces.

Viewed here is the clear container all the seeds are kept in, the rubber mold that is covering the gears that rotate the seed plate (gear is not viewed), the metal plate brush attachment that is used to ensure the seeds aren't getting stuck, and one of the three seed plate the Garden.R provides which is labeled with which seeds are applicable for this particular size.







#### Design

In the photo above we see the top of the drone and the Garden.R name and logo.

To the left, we see all three seed plates that comes with the Garden R. The leftmost seed plate is for small beans and peas, it has a hole diameter of 3/8" and the plate thickness is 1/4. The middle seed plate is for medium beans, peas, and sweet corn, it has a hole diameter of 9/16" and a plate thickness of 1/4". The seed plate on the right is meant for carrots, lettuce, chard, beets, and okra, and it has a hole diameter and thickness of 1/4".

### Orthographic



