

Product Design Specifications: Engine Shroud Sticker Applicator

Team Roles:

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Function: Employees at Wiscraft apply stickers to a lawn mower engine shroud that indicate the location of buttons. The majority of Wiscraft employees are legally blind with different types of visual impairments, including people that are completely blind. The current system incorporates a cover put over the device that guides the operator to apply the stickers in the proper location and orientation. This current system is not conducive to employees that are completely blind and is prone to error (incorrect orientation and wrinkles in stickers) that result in rework. The proposed specifications are intended for a design to decrease the error rate, improve efficiency, and allow all employees at Wiscraft to use.

Client Requirements:

- Improve process time
- Allows all employees access to process
- Reduces error rate

Design Requirements:

- Safe to operate
- Ergonomically friendly, intended use for visually impaired people
- Light weight
- Transports easily
- Material conducive to factory surroundings

1. Physical and Operational Characteristics

- a. Performance Requirements:** Device must provide the operator an easier and more accurate process to apply stickers on a plastic engine shroud. The device has the potential to be used by all employees at Wiscraft, including sighted and completely blind.
- b. Safety:** The device should have neither sharp edges nor other features that could potentially harm the operator.
- c. Accuracy and Reliability:** The product needs to ensure the stickers are properly placed in the correct location and orientation.

- d. **Life in Service:** Device should be made out of replaceable parts, increasing the service life indefinitely. The product should be able to withstand 500+ uses daily.
- e. **Shelf Life:** Storing the product should have no effect on its function.
- f. **Operating Environment:** The device will be used in a factory. Dust, dirt, dog hair, etc. should not affect the function of the product.
- g. **Ergonomics:** The product will be designed for people with visual impairments including people who are entirely blind.
- h. **Size:** The product will have a footprint less than 12" x 8", and a height of less than 8".
- i. **Weight:** The product should weigh less than 10 pounds.
- j. **Materials:** The device should be made out of light weight material that still retains structural stability.
- k. **Aesthetics, Appearance, and Finish:** The device should appear safe and operable in order to not scare the operator.

2. Product Characteristics

- a. **Quantity:** One unit will initially built, with the possibility of expanding to four units.
- b. **Production Cost:** A preliminary budget of \$400 has been established, with the option to expand if necessary.

3. Miscellaneous

- a. **Standards and Specifications:** No standards and specifications are required.
- b. **Customer:** The customer would like a device that allows completely blind people to perform this task more accurately and faster.
- c. **User-related Concerns:** The product should be safe and not harm the person using it.
- d. **Competition:** Currently no product exists that meets all of the requirements of our client.