

What's our Purpose?

- Give disabled operators access to their articulated tractors
- Currently no mounted lifts available for John Deere Tractors
- Tasked with creating a design that allows for these operators to use their tractors as they once were able to

Value Proposition

- The value of this product comes from the ability of disabled persons to use their tractors once again.

Quantatively

- Increase operation efficiency
- Reduce labor costs
- Diversified Tasks

Qualatatively

- Less limitations
- Operator independence
- Improved Quality of life

Final Design Rendering

John Deere 9RX



John Deere 9R



SS-1 AgrAbility Articulated Tractor Lift Design

Seinor Capstone Design Experience

SS-1 Team
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LifeLifts™
by Life Essentials

 **AgrAbility**
Cultivating Accessible Agriculture

 **PURDUE**
UNIVERSITY

A Special Thanks to

Dr. John Lumkes Stephen Swain
Dr. John Evans Aaron Etienne
Dr. Margaret Gitau The Life Essentials

Problem Scope

- In August of 2021, the team was presented with two clients who needed access to their John Deere 9R's but conventional methods were not an option
- Clients two tractors, John Deere 9620RX (Below) and 9410R.
- Task was to develop a tractor mounted design that followed certain constraints and criteria.

Constraints

- Lift must not exceed 14' when mounted
- Lift must not inhibit regular tractor operations
- Lift capacity >/= 500 lbs.
- Must be mounted
- Must on the tractor
- Must be a seated lift.

Criteria

- Easily useable by handicap persons
- Design meets safety standards
- Durable and able to handle the elements
- Easy to service and maintain
- Tractor resale value is not impacted
- on the tractor

Solution Path

- Looked into alternative mounted equipment for potential mounting points and decided on the best ones for each tractor
- Worked with Life Essentials to ensure the lifts were safe and properly designed for manufacture
- Due to the differences in the tractor models and configurations, two separate mounting techniques were created.
- Both mounting techniques use the **SAME** Life Essentials Truck Bed Lift.
- This way, as the tractors may change the lift itself can be utilized with different mounting

Our Final Designs

John Deere 9RX Design

- Lift design mounts on the rear track assembly
- Two metal sleeves extend away from the track creating the proper distance for mounting
- The lift sits on a platform that slides onto the tractor mounting assembly
- A simple pinning system is used to hold the lift on the mounting sleeve.

John Deere 9R Design

- Design places the lift between the rear fenders
- All mounting brackets will be bolted to the frame for easy removal
- Brackets create a simple platform for the lift to sit on
- Lift is secured to the platform using bolts.

