

# Garden Helper Robot (GHR)

## Project

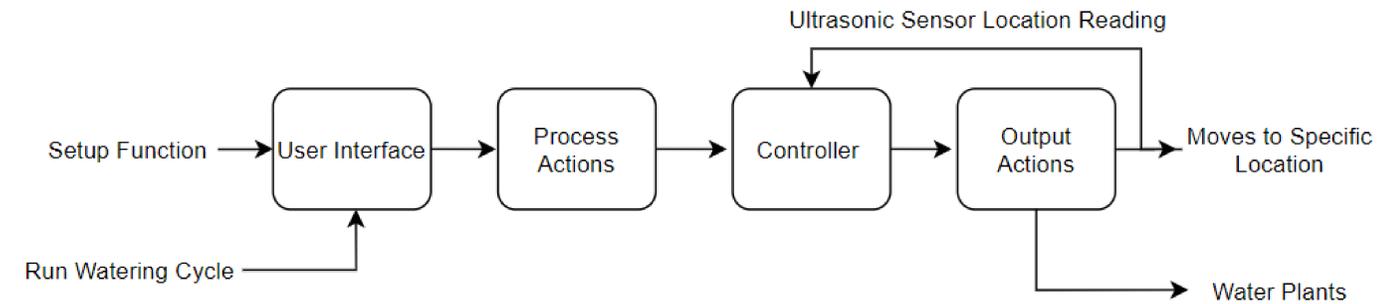
Engineer Joshua Mecham's grandfather Jerry Hansen loves to garden; however, Jerry's arthritis prevents him from pursuing his passion.

There had to be some way to incorporate an ordinary hose box into a mobile gardening bench. This solution would simultaneously water Jerry's plants as well as provide a seat Jerry could use instead of getting on his hands and knees.

For this reason, the GHR was designed with people like Jerry in mind that want to continue their hobbies despite disabilities/sickness/age troubles.



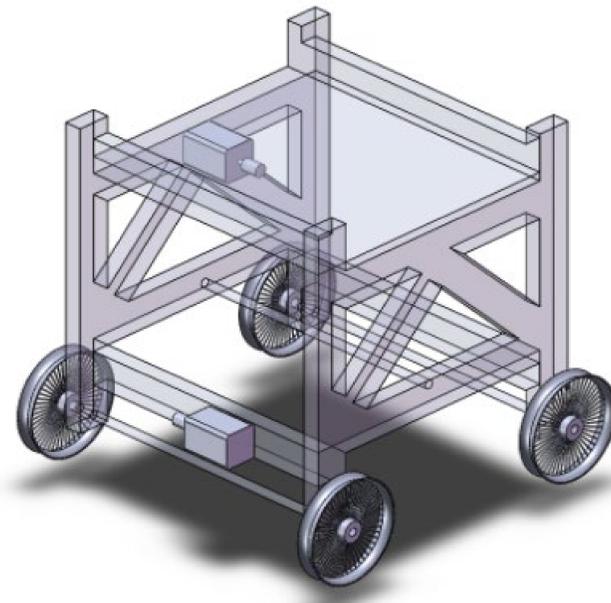
## System



## Methods

### Key components of the GHR system:

- 1.5' x 1.5' wooden chassis to house the electronics and the hose
- Chains, sprockets, axles, bearings, stepper motors, wheels for movement
- Ultrasonic Sensor for closed loop feedback
- LCD and keypad for the User Interface
- Motor driver and microcontroller for the control
- The GHR was programmed with an emergency shutoff feature to ensure the safety of all users.



## Conclusion

We successfully implemented the world's first automated Garden Helper Robot.

- This robot assists the elderly and disabled.
- This is only the first iteration of a life assistant robot designed for an outdoor space. Further elaboration and innovation will improve the GHR.
- This project succeeded in all our expectations.
- Not only did we learn valuable electrical system integration, but we gained extensive knowledge on a previously unexplored mechanical system.
- We hope to further elaborate and modulate the GHR to make outdoor life even easier.