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October 13, 2020

Sea Scanners Team

Overview

- Purpose
- Requirements
- Theory
- Looking Forward

Purpose

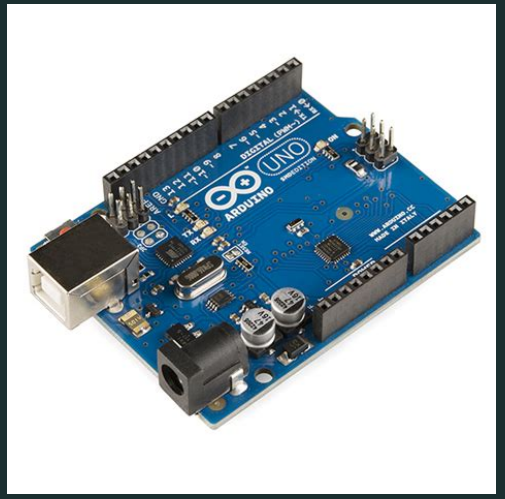
- Design Antenna-Positioning Control System
  - Antenna is on a Moving Barge
  - Antenna Needs to Align with On-Shore Omnidirectional Antenna
  - System will use GPS Coordinates to Align Automatically

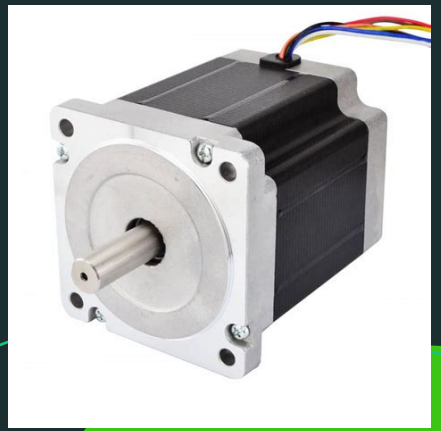
Requirements

- Maintain orientation towards a fixed onshore transmitter
- System must operate in ALL weather conditions
- Read in GPS coordinates and calculate position
- Align antenna within 30 seconds

Theory

- Use Arduino Uno as Microcontroller
  - Read in GPS Coordinates of the Bow and Stern of Barge
  - Determine Antenna's position relative to Omnidirectional Antenna
  - Use Stepper Motors to position Barge Antenna
- Power System Using Barge's Output Panel
  - Rectify 120VAC input and regulate the output voltage to Arduino
  - Potentially adding switch to easily power on/off system
- Housing of the Arduino and the power supply
  - Waterproofing the system and protection from corrosion





Looking Forward

- Further Research on Reading GPS Coordinates
- Order Most Parts of System Prototype by End of Week
- Begin Creating Algorithm for Positioning Antenna

Questions

Thank you!