

# *Innovating the Ship Repair Industry*

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Gator's Design Team

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# Designing to Innovate the Modern World

## Concerns:

Maintenance  
Drydock Time  
Saving

## Ideas:

Proactive  
Conservative  
Benefit

## Solution:

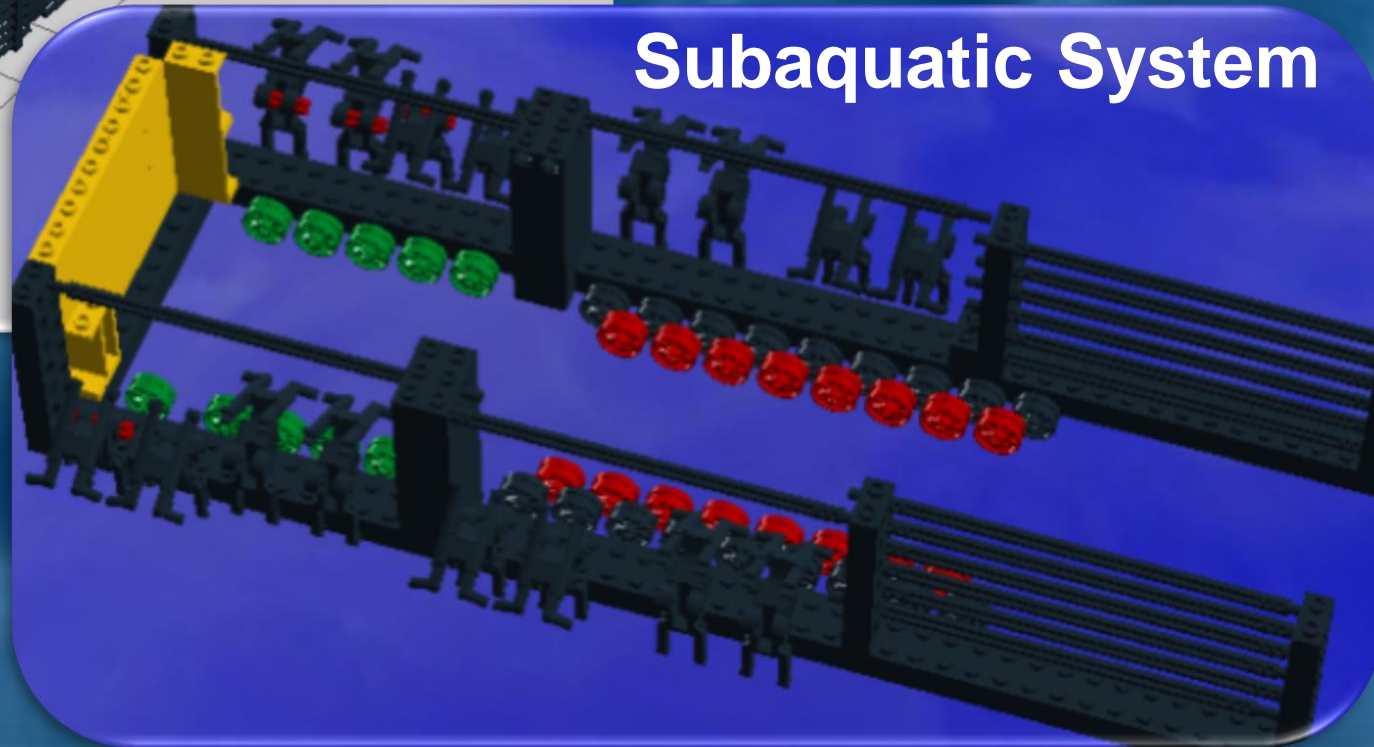
Deep sea  
Services  
Subaquatic  
Systems

# INNOVATIVE Design

Deep Sea Service



Subaquatic System

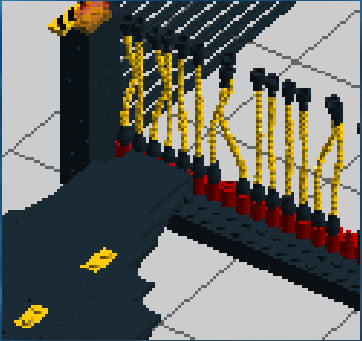


# Problematic Areas

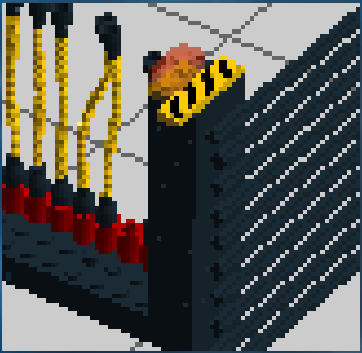
- **VESSEL HULL** - the bottom of the ship that is emerged underwater and designed for storage.
- **PROPELLERS** - located in the back of the ship designed to provide thrust
- **STERN** - rear frame of the ship.
- **BOW** - the front section of the ship

# Deep Sea Service Layout

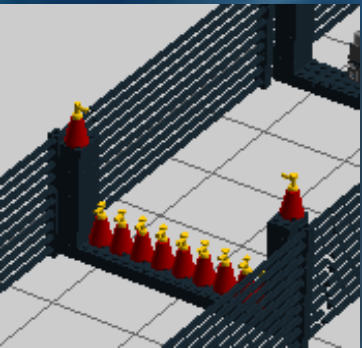
## Legend:



BRISTLES



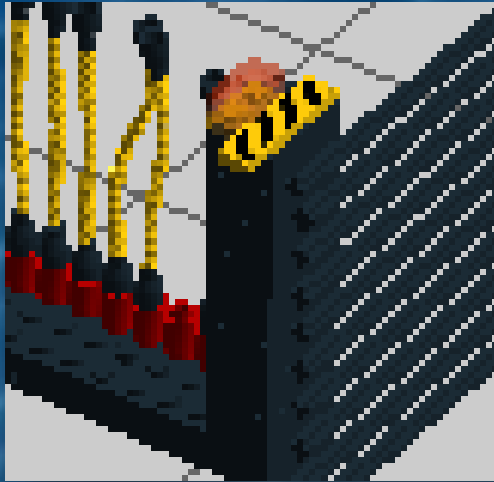
FILTER INTAKE SYSTEMS



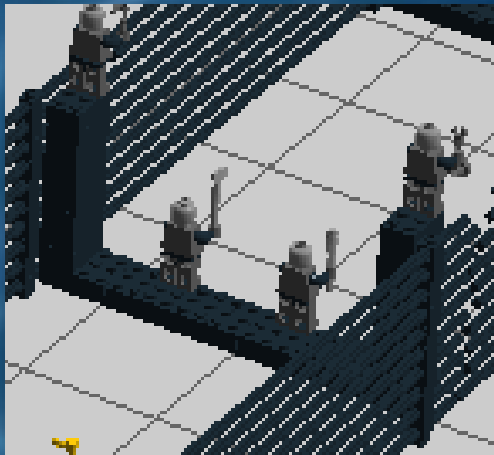
UNDERWATER CABLES

# Deep Sea Service Layout

## Legend:



COATED PLASTIC STRINGS

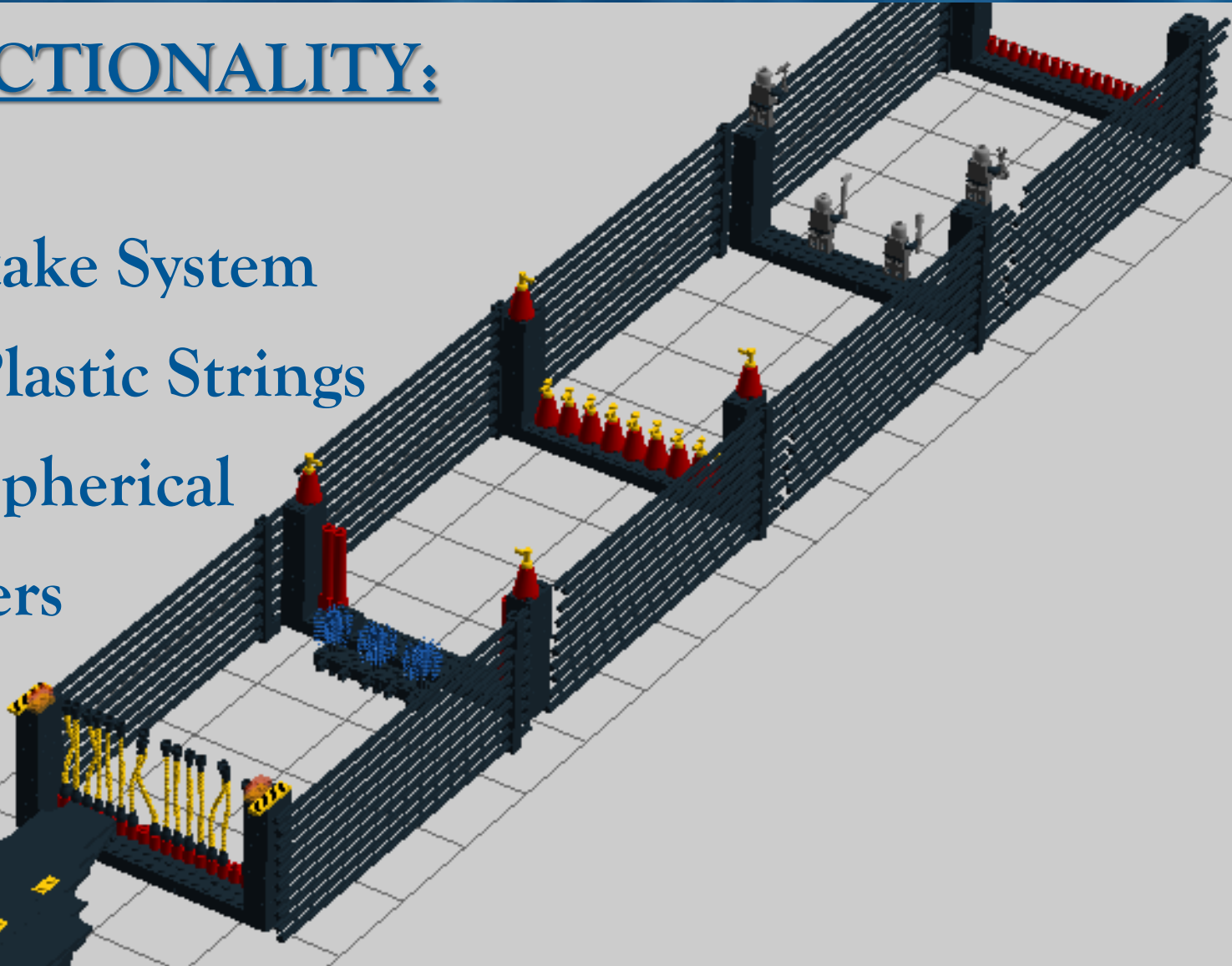


MARINE SPHERICAL  
RESURFACERS

# Deep Sea Service of Operation

## FUNCTIONALITY:

- Bristles
- Filter Intake System
- Coated Plastic Strings
- Marine Spherical Resurfacers



# Subaquatic System Layout

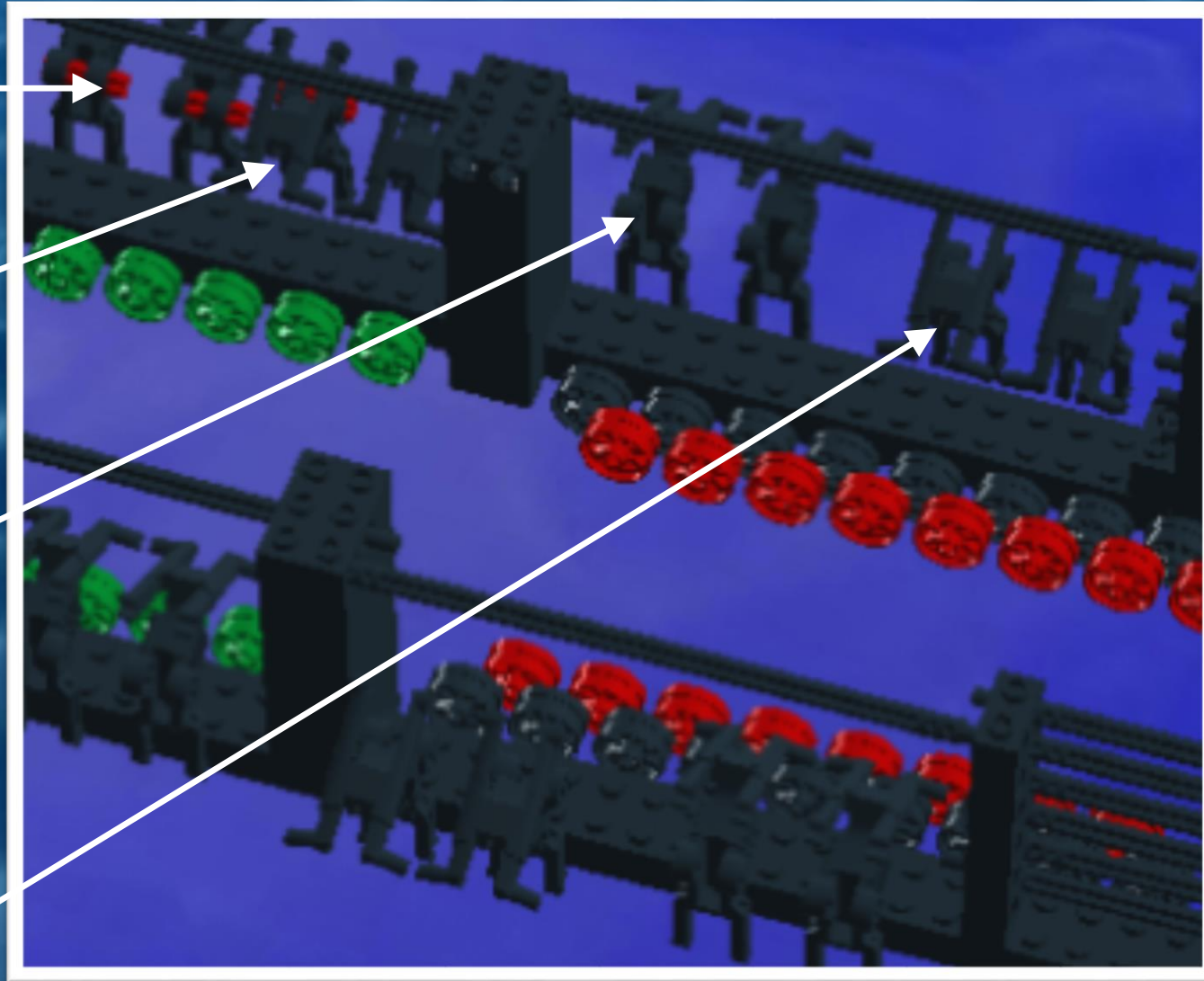
## LEGEND:

Robotic  
Scanners  
(Typ. both sides)

Robotic  
Surface Prep  
(Typ. both sides)

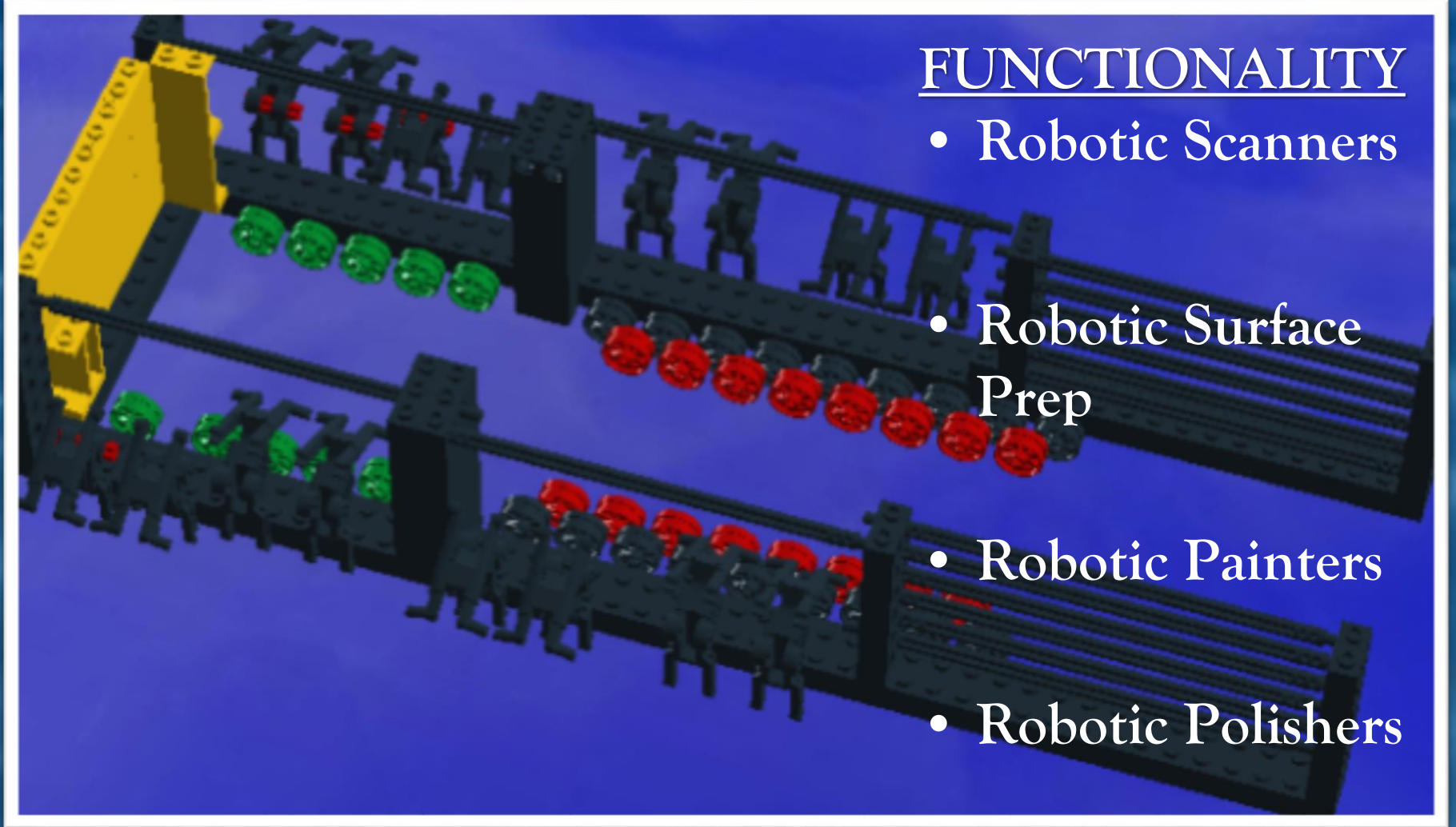
Robotic  
Painters  
(Typ. both sides)

Robotic Polishers  
(Typ. both sides)





# Subaquatic System of Operation



## FUNCTIONALITY

- Robotic Scanners
- Robotic Surface Prep
- Robotic Painters
- Robotic Polishers

# Ship Repair Opportunities

High School Diploma

\$19.45 hourly

## Responsibilities:

- Prepares the Vessel for painting  
Determine methods of coating  
Select the method of quality for coating application
- Interpret paint maintenance schedules
- Exhibit competence in management
- Performs quality inspections



## Coating Specialist

# Ship Repair Opportunities



## Maintenance Electrician

High School Diploma or GED, with Technical or Post-Secondary electrician's degree and license.

\$16.50 to \$18.00 hourly,

### Responsibilities:

Installs, maintains, modifies, and troubleshoots electrical wiring and electronic components

Inspect electrical systems and components

Prepare drawings, read and interpret specs

# Ship Repair Opportunities

High School Diploma or GED, Vocational, Technical Training or Associate Degree and license.

\$46,600 - \$50,500 Annually

## Responsibilities:

Installs, maintains, modifies, and troubleshoots electrical wiring and electronic components

Inspect electrical systems and components

Prepare drawings, read and interpret specs



Maintenance  
Pipefitter

# Ship Repair Opportunities

High School Diploma or  
Equivalent

\$47,500 Annually (\$22.80 p/h)

## Responsibilities:

Inspecting, maintaining,  
upgrading, repairing and  
fabricating machinery parts,  
equipment and defective parts

Align machines and equipment,  
connect power unit to machines,  
test units

Assemble and install equipment



Millwright

# Ship Repair Opportunities

Associate degree, (0-3 years experience)

\$40,000 – \$50,000 Annually

## Responsibilities:

Operate equipment used to perform quality inspection

Gain experience in radiographic, magnetic particle, liquid penetrant, ultrasonic, eddy current inspection

Receive training in visual inspection, quality standards, planning, technical applications and codes interpretation



## Non-Destructive Tester

# Ship Repair Opportunities



Rigger

High School Diploma (few month-1year)

\$21.18 hourly

## Responsibilities:

Assemble and install rigging gear such as cables, ropes pulley and winches

Experienced Rigger examines objects to be moved, estimate their size, shape and weight

# Ship Repair Opportunities

Degree from Maritime Shipbuilding Program or Apprenticeship

\$31,158 Annually (depending on experience)

Training in shipyards

Responsibilities:

Shipwrights support all processes involving level and transit requirements. This includes docking, undocking, keel blocking, recording of ship's critical dimensions, installation of draft figures and hull marking, support the erect and set process, and trade support for reference line application.



## Shipwright



# Preventative Maintenance Equates to:

- Decrease in Drydock Time and Visit

- \$30,000.00 a day when drydocked
- Example: ~ 2 months to prep and paint
- \$30,000.00 a day x 1 month = \$840,000.00
- Approximately 1.68 million dollars

- Reduction in Paint Quantity

- 4 million gallons of paint for 7 coats
- Reduce to 3 coats less paint needed

- Lessen in Personal Protective Gear

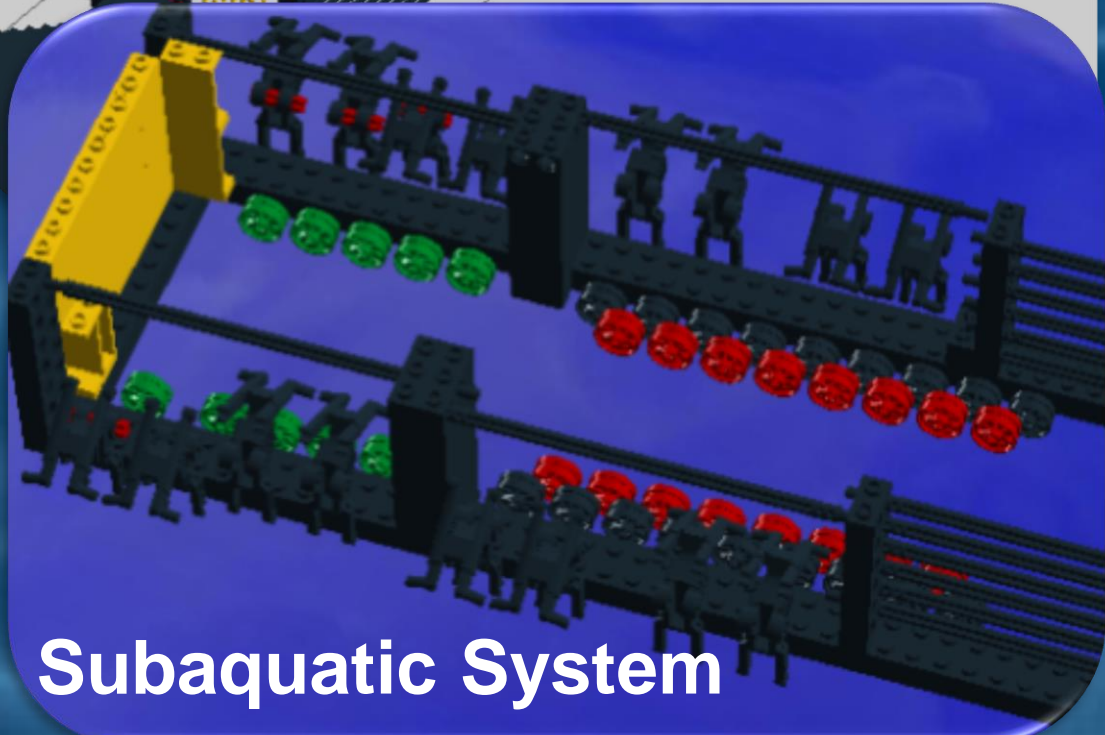
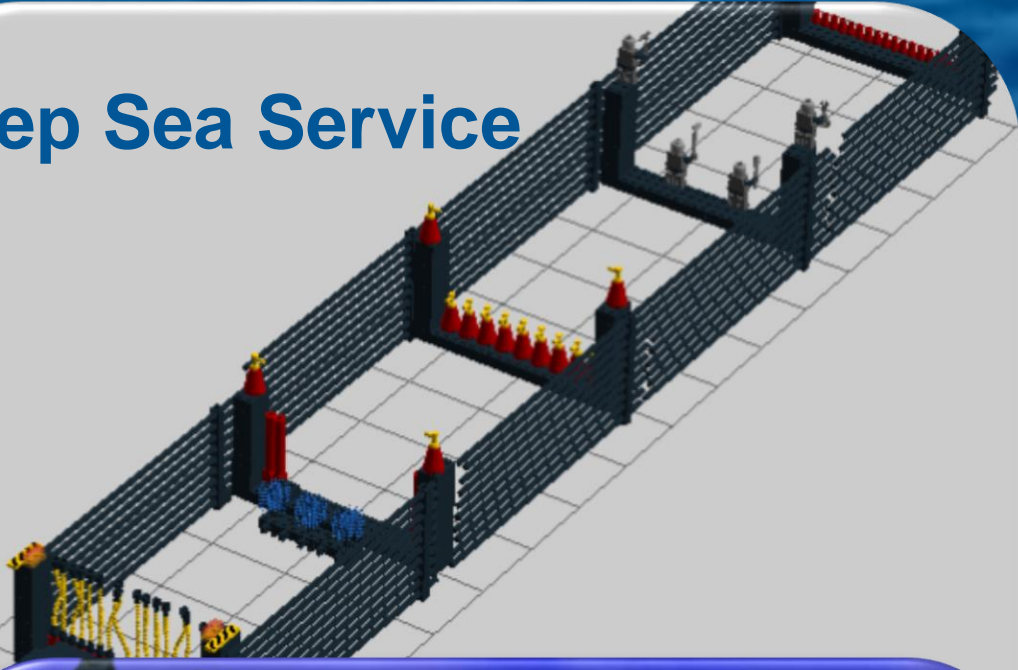
- Decline in required Manpower and Equipment



# Team Learning

- Manipulating the LEGO Building software.
- Respecting one another's opinions and ideas.
- Accepting constructive criticism.
- Working under pressure and timeline.
- Realizing that learning and working can be fun and hard.
- Unifying each other's ideas to complete a task.
- Understanding that practice does not make it perfect.

## Deep Sea Service



## Subaquatic System

# Conclusion

- Position Deep Sea Services around the world, 7 Oceans
- Decrease Dry-dock Visits and Time.
- Install Pier Side Subaquatic Systems
- Increase Cost Savings

# Gator's Design Team

Jack Collins – 7<sup>th</sup> Grade

Jerrell Griffin – 7<sup>th</sup> Grade

Javarr Johnson – 7<sup>th</sup> Grade

Favor Kayode – 7<sup>th</sup> Grade

Aliya Minggia – 7<sup>th</sup> Grade

Takiyah Monroe-Richardson – 7<sup>th</sup> Grade

Lexus Thigpen – 7<sup>th</sup> Grade

Sean Collins – 6<sup>th</sup> Grade

Mrs. Oaks-Garcia,  
Teacher

Mr. Williams Prescott  
Advisor

# Questions and Comments

