Goals and Tasks for Botball 2019

Greater DC/Virginia Region
Team: gmhshornets6
Team no.: 0506

Games, Goals, and Tasks:
- Score points with the Lego robot (Deadline: Mar 15)
    - Move ambulance to the medical building that is not on fire (Deadline: Mar 1)
    - Move poms near burning medical building (Deadline: Mar 1)
    - Move firefighter to the medical skybridge (Deadline: Mar 15)
    - Sweep ground people into the non burning medical center (Deadline: Mar 15)
- Score points with the Create robot (Deadline: Mar 17)
    - Connect power lines (Deadline: Mar 13)
    - Transport gas valve to utility zone (Deadline: Mar 16)
    - Large water container burning skyscraper (Deadline: Mar 17)
- Have robots built completely (Deadline: Mar 27)
    - Build all arms and claws (Deadline: Mar 22)
    - Have reliable baseline numbers for movements (Deadline: Feb 13)

Robot Building Goals:
Create Robot Building Goals
- Build Scoop attachment (Deadline: Feb 22)
    - Build a scoop that will push medical supplies & food (Plus pom poms) into the disaster relief zone. (Deadline: Feb 22)
- Build a 4 Bar Lift (Deadline: Mar 8)
    - Build a bar lift used to raise the claw (Deadline: Mar 6)
    - Build attachment that connects bar lift so that the claw can be used to push the powerlines to the magnet. (Deadline: Mar 8)
- Build a claw attachment (Deadline: Mar 8)
    - Build a claw that will act as a "hand" in connecting the power line (Deadline: Mar 8)
    - Build a attachment that connects to bar lift to raise power line (Deadline: Mar 8)

Lego Robot Building Goals
- Build scoop attachment (Deadline: Feb 22)
    - Build the scoop that will be used to collect and transport water poms to burning medical center and collect and transport ambulance to the non burning medical center (Deadline: Feb 15)
    - Attach the scoop to the robot (Deadline: Feb 22)
- Build small claw attachment (Deadline: Mar 8)
    - Build the arm of the claw that moves up and down (Deadline: Mar 1)
    - Build the claw attachment that opens and closes to grab citizens and transport them to the non burning medical center (Deadline: Mar 7)
    - Attach entire claw to the robot (Deadline: Mar 8)
- Build large claw attachment (Deadline: Mar 22)
    - Build the arm of the claw that moves up and down (Deadline: Mar 15)
    - Build the claw attachment that opens and closes to grab firefighters and the fire truck and transport them to the burning medical center (Deadline: Mar 22)

Programming Goals and Tasks:

Create Programming Goals and Tasks
- Connect Electrical Lines (Deadline: Feb 8)
    - Program robot to drive into position for Electrical Line connection using ET sensor and gmpc's (Deadline: Feb 1)
    - Program robot to raise Arm Lift and drive toward magnet for connection using servo position and gmpc's (Deadline: Feb 8)
- Transport Gas Valve (Deadline: Feb 22)
    - Program robot to drive into position to collect Gas Valve using ET sensor and gmpc's (Deadline: Feb 11)
    - Program arm servo to lower onto and lift and claw servo to grab Gas Valve (Deadline: Feb 15)
    - Program robot to transport Gas Valve to Utility Zone using ET sensor and gmpc's, then by lowering arm servo and opening claw servo to drop off Gas Valve (Deadline: Feb 22)
- Collect water with the Water Reclamation Unit (Deadline: Mar 8)
    - Program robot to drive into position for water collection using gmpc's and ET sensor (Deadline: Feb 27)
    - Program arm servo to lower and claw servo to pick up Water Reclamation Unit (Deadline: Mar 1)

- Program robot to drive into position to collect water with the Water Reclamation Unit using gmpc's and by lowering arm servo to place the Water Reclamation Unit over a group of water poms (Deadline: Mar 8)
  - Bring Food and Medical Supplies to the Disaster Relief Zone (Deadline: Mar 20)
    - Program robot to drive into position for Supply collection using gmpc's and IR reflectance sensor (Deadline: Mar 11)
    - Program robot to follow centerline of Side using IR reflectance sensor and gmpc's (Deadline: Mar 13)
    - Program robot to bring Supplies to Disaster Relief Zone using gmpc's and ET sensor (Deadline: Mar 20)

Lego Programming Goals and Tasks
- Bring water to the burning medical center (Deadline: Feb 5)
  - Move towards and collect the water in the Flood Zone using IR reflectance and loops, as well as a plow (Deadline: Feb 1)
  - Detect whether medical center is burning using IR reflectance and ET sensor (Deadline: Feb 4)
  - Drop water at the burning medical center by moving robot back, leaving poms near the burning medical center (Deadline: Feb 6)
- Bring injured people to the non-burning medical center (Deadline: Feb 115)
  - Move towards and collect the injured people using msleeps and claw (Deadline: Feb 8)
  - Detect which medical center is burning using IR reflectance sensor and ET sensor (Deadline: Feb 11)
  - Drop ambulance and injured people at the burning medical center by opening the claw(Deadline: Feb 13)
- Bring ambulance to the non-burning medical center (Deadline: Feb 20)
  - Move robot to also collect ambulance using the claw and msleeps(Deadline: Feb 15)
  - Detect which medical center is not burning using IR reflectance sensor and ET sensors (Deadline: Feb 18)
  - Drop off the ambulance at the non-burning medical center by opening the claw (Deadline: Feb 20)
- Bring firefighters to the burning medical center (Deadline: Mar 7)
  - After dealing with other goals; move to the Firefighter pole using msleeps (Deadline: Feb 22)
  - Smack off all 5 firefighters using the claw (Deadline: Feb 25)
  - Collect firefighters using the plow (Deadline: Feb 27)
  - Drop off at burning medical center by using IR reflectance sensors, ET sensors, and opening the plow(Deadline: Mar 1)

- Bring fire truck to the burning medical center (Deadline: Mar 15)
    - After dealing with other goals besides firefighters; move to the Firefighter pole using msleeps (Deadline: Mar 3)
    - After collecting Firefighters; collect Firetruck using claw(Deadline: Mar 5)
    - Drop off at burning medical center by using iR reflectance sensors, ET sensors, and opening the claw (Deadline: Mar 8)

Documentation Goals and Tasks:

- 1st Period Documentation Project Plan Complete/Submitted(Deadline: Jan 30)
    - A. meeting in class to review and assign roles, create schedule, exchange contact info, and create a conflict resolution (Deadline Jan 9)
    - B. consult with the building and programmers to establish a plan and list of tasks and deadlines for the season (Deadline Jan 29)
- 2nd Period Documentation Mechanical and Code Review Complete/Submitted (Feb 27)
    - A. meet and exchange data and testing with programmers (Deadline Feb 13)
    - B. meet and exchange data and testing with builders (Deadline Feb 16)
    - C. assign roles/sections of 2nd Period documentation (Deadline Feb 20)
- 3rd Period Documentation Lessons Learned and Survey Complete/Submitted(Deadline Apr 03)
    - A. meet and set up a computer to take the survey as a team(Deadline Mar 27)
    - B. discuss and debrief about lessons learned(Deadline Mar 29)

Schedule Conflicts:

Conflicts:
- February 18th (Presidents day-No school meeting)
- March 7th (Choral Assessment-No Maddie, Regan or Kaydence)
- March 27th-29th (SGA Meeting-No Andrea or Kaydence)
- March TBD (Orchestra Assessment-No David)

Team Organization:

Schedule of Meeting Time:
- Regional Tournament: 4/6
- Meetings will occur during class (1:05-2:45)and during lunch as needed (12:05-1:05)
- Schedule for January:

- 1/29,1/30,1/31
- Schedule for February:
  - 2/1,2/4,2/6,2/8,2/11,2/13,2/15,2/18,2/20,2/22,2/25,2/27
- Schedule for March:
  - 3/1,3/4,3/6,3/8,3/11,3/13,3/15,3/18,3/20,3/22,3/25,3/29
- Schedule for April:
  - 4/1-4/6

Division of Labor:
- Adult Team Sponsor: Mr. Skinner
- Team Leader: Madison Pyles
- Robot Building Team for Create Robot: Kent Sipe
- Robot Building Team for Lego Robot: Regan Lillard
- Programers for Create Robot: Andrea Datan & David Shim
- Programers for Lego Robot: Kaydence Drys & Minh Nguyen
- Documentation Team: All Members

Conflict Resolution:
- Team will discuss both sides of the conflict in order to understand the conflict. Team will allow both sides to express their opinions or ideas in an civil way, in order to reach a compromise.
- If no compromise is reached, team will take a vote to come to a decision. If there is a tie, Maddie, the team lead, will be the tie breaker.
- If no compromise is still reached, then the team will bring the issue to the adult team sponsor, Mr. Skinner.