GoBabyGo

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Project Mentor:

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Ali Albaloushi

Clients:

Dr. James "Cole" Galloway”

- Professor, Dept. of Physical Therapy.
- University of Delaware.
- Founder of the project.

Dr. Kyle Winfree

- Assistant Professor
- PhD,Biomechanics and Movement Science, University of Delaware.
- MSE,Robotics, University of Pennsylvania.
- BS,Physics, Northern Arizona University.

Abdulla Almutairi

Introduction:

- A car that allows kids with mobility issues to socialize, improve posture and reduce depression.
- Using the function of a pinball flipper applying it on the wild thing.
- More group meetings as we move forward with the project.

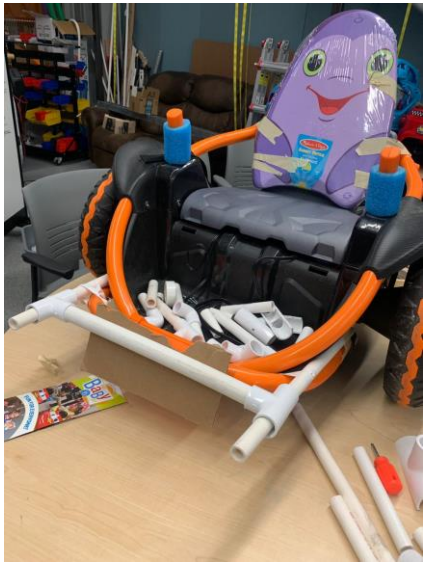
Abdulla Almutairi

Current Status:

- New different designs as a back-up plan
- New designs are encouraged by Dr. Winfree.
- Delay two weeks on our schedule due to materials arriving late.
- Website not uploaded to NAU servers because of IT.

Ali Mohammad

Continue...



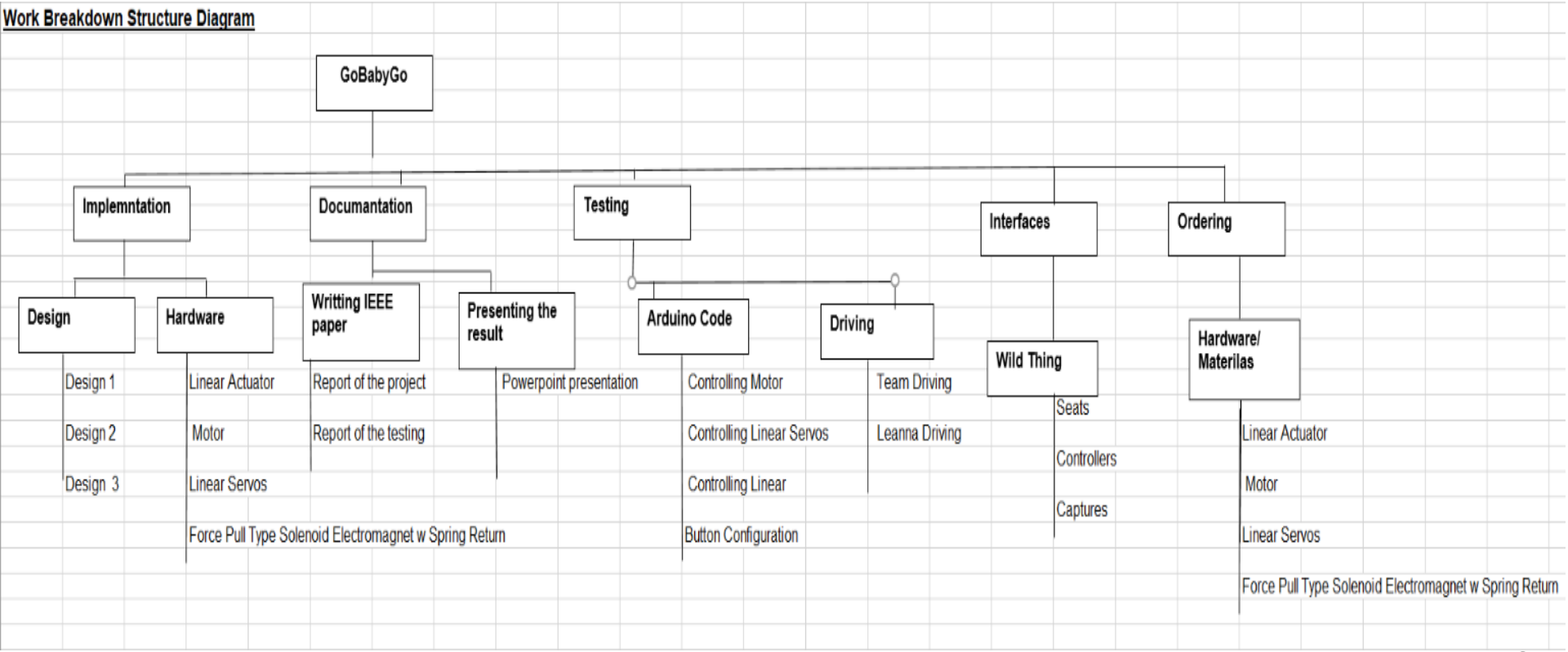
WBS Overview:

What is Work Breakdown Structure (WBS)?

> “A deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables”

Ali Mohammad

WBS Overview:



WBS of Ali Mohammad:

WBS	Task/ Activity	Deliverable	Description	Other People
1	Hardware			
1.1	Motor	Will act as the force thus pushing the ball	Motor that will rotates 360 degrees	Ali
1.2	Linear Actuator	Will act as Will act as the force thus pushing/keeping the ball	Linear motor that allows back and forward motion	
1.3	Linear Servos	Will act as the force thus pushing/keeping the ball	Linear motor that allows back and forward motion	Abdullah
1.4	Force Pull Type Solenoid Electromagnet w Spring Return	Will act as the force thus pushing the ball	Linear motor that will allow back and forward motion with the assistance of force from the spring return	
2	Arduino Code			
2.1	Motor Code	Controlling the speed and direction of motor (left/right)	Code that sets up the voltage levels	Hakem
2.2	Linear Actuator Code	Controlling the speed of the linear servos	Code that sets up the voltage levels	
2.3	Linear Servos Code	Controlling the speed of the linear servos	Code that sets up the voltage levels	
2.4	Joystick/Button Code	Giving the signal thus rotating the flippers/shovel	A joystick or a button that will allow the motor and actuator to function accordingly	Hakem
3	Documentation			
3.1	Writing IEEE paper	Each team member is going to be assigned to a specific section in the report	Complete Assigned Section	Whole team
3.2	Power Point Presentation	Each team member is going to be assigned to a specific section in the presentation	Complete Assigned Section	Whole team

Activities and Tasks:

1. Hardware:
   - Different motors to accommodate different designs
2. Arduino Code:
   - Code language that will modify the hardware to function accordingly.
3. Documentation:
   - Report.
   - Powerpoint presentation.

WBS of Hakem Almutairi:

ID	Activity/Task	Description	Deliverables	Other people
1	**Wild Thing**			
1.1	Seat	Seat for sitting and controlling the car in a relaxed way.	Support the seat with a comfortable cushion as a replacement of the original one (non - cushion)	-
1.2	Controllers	To control the flippers easily.	Provide two buttons on the right and on the left, so when the child press on them, the result will be controlling the flippers (moving them)	Whole team
1.3	Captures	To hold the ball while driving the wild thing car!	Implement to shovel to hold the ball.	-
2	**Driving**			
2.1	Team driving	Driving the wild thing car!	Testing it before deliver the product to the family.	Whole team
2.2	Leanna driving	Leanna will drive the wild thing car!	Leanna's family will give us a feedback about the product.	-
3	**Documentation**			
3.1	Writing IEEE paper	Each team member will be assigned to one section of the paper. My task is to write my assigned section.	Complete my assigned section.	Whole team
3.2	Power Point Presentation	Everyone in the group will be responsible for specific slides. I will be assigned to certain slides of the presentation.	Complete my assigned section	Whole team

Activities and tasks:

1. Wild thing:
   - Supported cushion for the seat.
   - Buttons to control the flippers.
   - Shovel to hold and kick ball the ball while driving.
2. Driving:
   - Test drive.
3. Documentation:
   - Report.
   - Powerpoint presentation.

WBS of Abdulla Almutairi:

WBS	TASK	DELIVERABLES	Discerption	OTHER PEOPLE
1	Ordering/Hardware materials			
1.1	Linear Actuator	Follow the order with Ashweja to make sure deliver on time	Linear motor that allows back and forward motion.	Ali Albaloushi
1.2	Motor	Follow the order with Ashweja to make sure deliver on time	Motor that will rotates 360 degrees	
1.3	Linear servos	Follow the order with Ashweja to make sure deliver on time.	Linear motor that allows back and forward motion.	Ali Mohammad
1.4	Force Pull Type Solenoid Electromagnet spring Return	Follow the order with Ashweja to make sure deliver on time. And check the quality	Linear Motor that will allow back and forward motion with the assistance of force from the spring return	Hakem Almutairi
2	Documentation			
2.1	Writing IEEE paper	Each team member is going to be assigned to a specific section in the report	Complete Assigned Section	Whole Team
2.2	Power Point Presentation	Each team member is going to be assigned to a specific section in the presentation	Complete Assigned section	Whole Team

Activities and tasks:

1. Ordering / Hardware:
   - Follow the order with Ashwija.
2. Documentation:
   - Report.
   - Powerpoint presentation.

WBS of Ali Albaloushi:

WBS	Task	Description	Deliverables	Other people
1	Design			
1.1	Design 1	Function of pinball into wild thing	Kicking the ball	Whole team
1.2	Design 2	Shovel to hold the ball while driving. Also, kicking the ball	Hold and kick the ball	Whole team
1.2.1	Design 3	Holding the ball and a regular motor acting as a force to kick the ball	Hold and kick the ball	Whole team
2	Presenting the results			
2.1	PowerPoint Presentation	Each team member is going to be assigned to a specific section in the presentation	Complete Assigned Section	Whole team
3	Writing IEEE paper			
3.1	Report of the project	Each team member is going to be assigned to a specific section in the report	Complete Assigned Section	Whole team
3.1.1	Report of the testing	Each team member is going to be assigned to a specific section in the report	Complete Assigned Section	Whole team

Activities and Tasks:

1. Designs:
    - Different designs as a back-up plan.
2. Presenting results
    - Powerpoint presentation.
3. Writing IEEE paper:
    - Testing Report.
    - Project report.

Conclusion:

- A car to allow kids with mobility issues to socialize and improve posture.
- **Current Status:**
  - Working on first Design.
  - Website is ready, but waiting for IT to get permission for uploading.
- **Delay:**
  - Two weeks delay because of materials/hardware arriving late.
- **Back On track:**
  - More group meetings to get back on track.
- Different designs as a backup plan.

Hakem Almutairi

Resources:

E. Cohen, “A Beginner-Friendly Guide to Work Breakdown Structures (WBS),” *aerie-hero-2.png*. [Online]. Available: https://www.workamajig.com/blog/guide-to-work-breakdown-structures-wbs. [Accessed: 26-Feb-2019].

“Overview,” *TCWP*. [Online]. Available: http://www.tcwp.org.uk/. [Accessed: 26-Feb-2019].

Hakem Almutairi