

Document Version Number: 6

Date: April 12th

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HARDWARE VERSIONS DESCRIPTION AND EVOLUTION

Project: DPM Project, Winter 2012

Task: Documentation

Why we did those modifications:

Version 1 : it was just a simple draft, in order to give us an idea of what it will look like.

Version 2 : it was the first real design of the robot.

Version 3 : we noticed that the wheels were bending inward due to the weight of the robot so we added some pieces to solidify it. Then, we switched the trigger mechanism from pressing against the ball to lifting it up so that less friction is applied and the ball can reach the turning wheels with more velocity.

Version 4 : we changed the pieces that were pushing against the touch sensor of the dispenser since we knew exactly what the dimensions were. Moreover, we moved the bricks to the front of the robot since there was too much weight on the back and when the robot tried to stop after turning 90 degrees, it sometimes went over the desired angle due to the mass poorly distributed.

Version 5 : we tried a first defence mechanism.

Version 6 : We moved the light sensor close to the wheels in order to get a better odometer correction and we came up with a new idea for the defence mechanism since the old one was too big and when it was localising in square one, it was touching the walls behind the robot.

[v1 - 03.03.12 - Prototype Building](#)

[v2 - 10.03.12 - First Draft](#)

[v3 - 20.03.12 - Reverse Trigger System](#)

[v4 - 21.03.12 - Weight Repartition](#)

[v5 - 30.03.12 - Defense Mechanism v1](#)

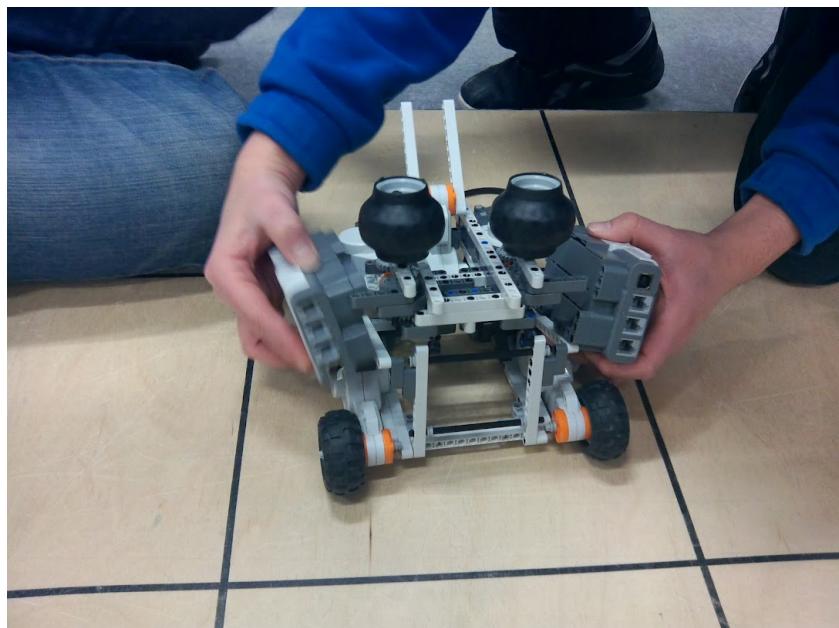
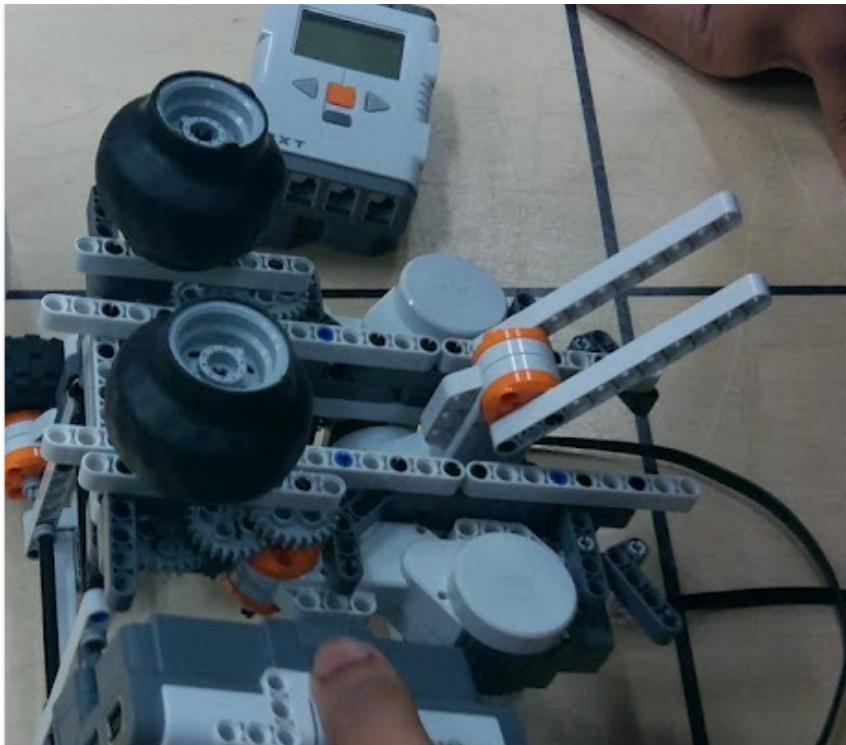
[v6 - 03.04.12 - Defense Mechanism v2](#)

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v1 - 03.03.12 - Prototype Building



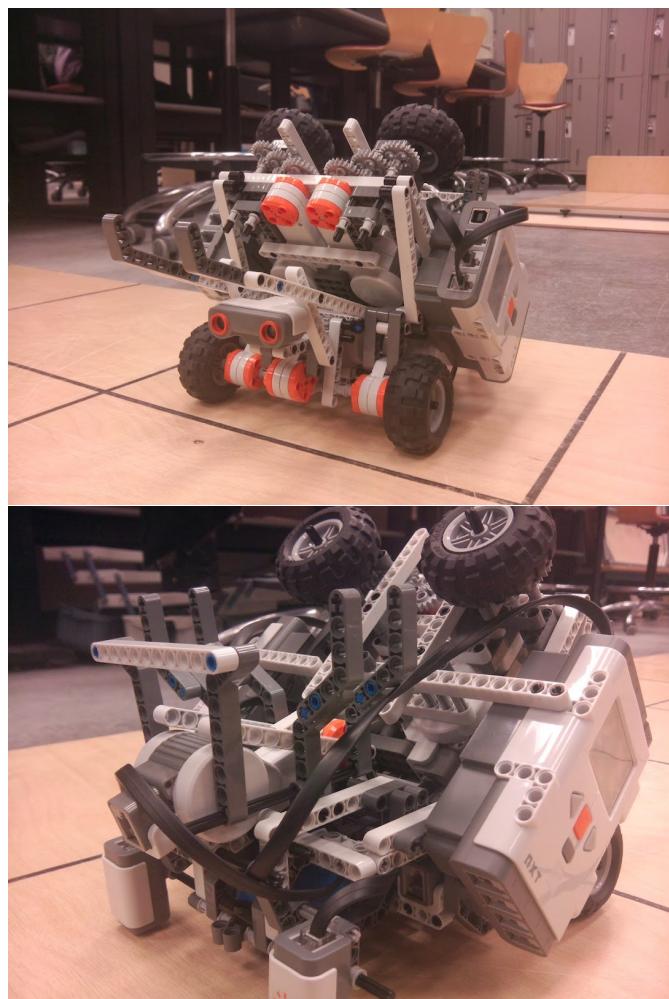
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v2 - 10.03.12 - First Draft

- Complete building the very first 'draft' of the robot
- Chassis was too unstable and launcher inconsistent with wheels used.
- Build new launcher system and chassis.
- Gears was touching side or ramp
- Install touch mechanism for ball dispenser (Put approximately since detail specification not yet given)
- Middle motor installed to be used for defense mechanism
- Ball collector installed
- Trigger system installed.
- Light sensors installed.
- Ball as back wheel



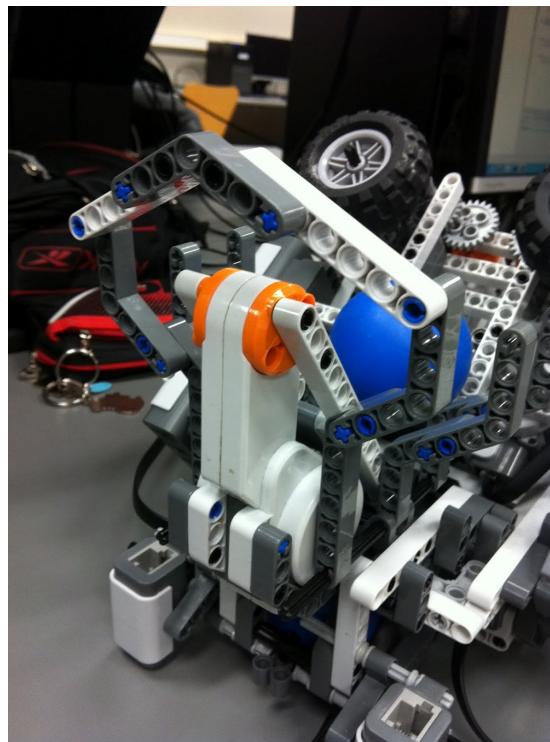
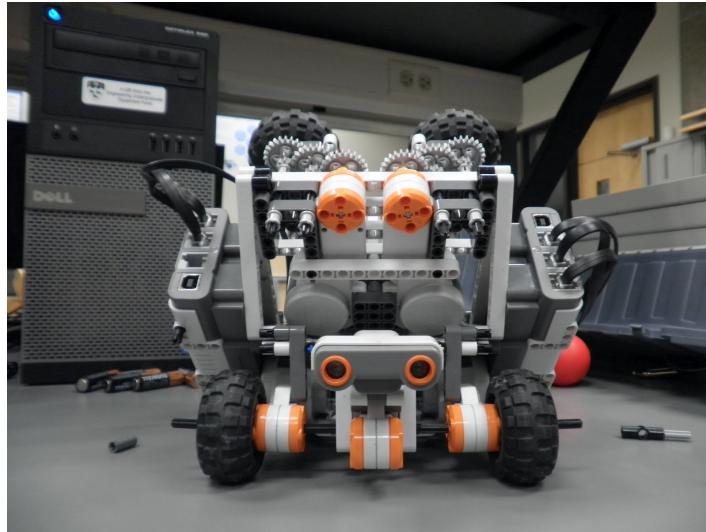
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v3 - 20.03.12 - Reverse Trigger System

- Pieces of Legos uninstalled to be able to move wheels closer together (wheels were bending under heavy weight)
- Trigger system reversed (from down to up) less friction.



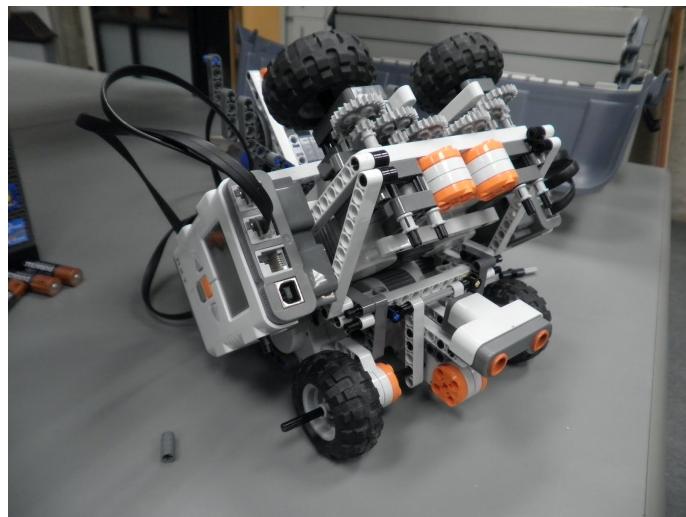
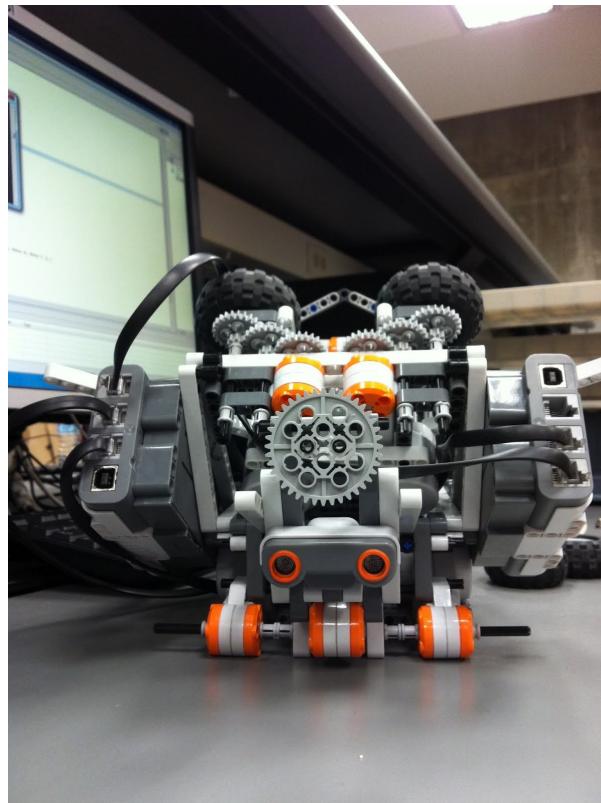
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v4 - 21.03.12 - Weight Repartition

- Return to original design for chassis (wheels) (version 2)
- Added two pieces of Legos to further support the axle.
- Bricks moved further in front to reduce weight at the back of robot.
- New touch mechanism installed (measured with specification on the dispensor height)



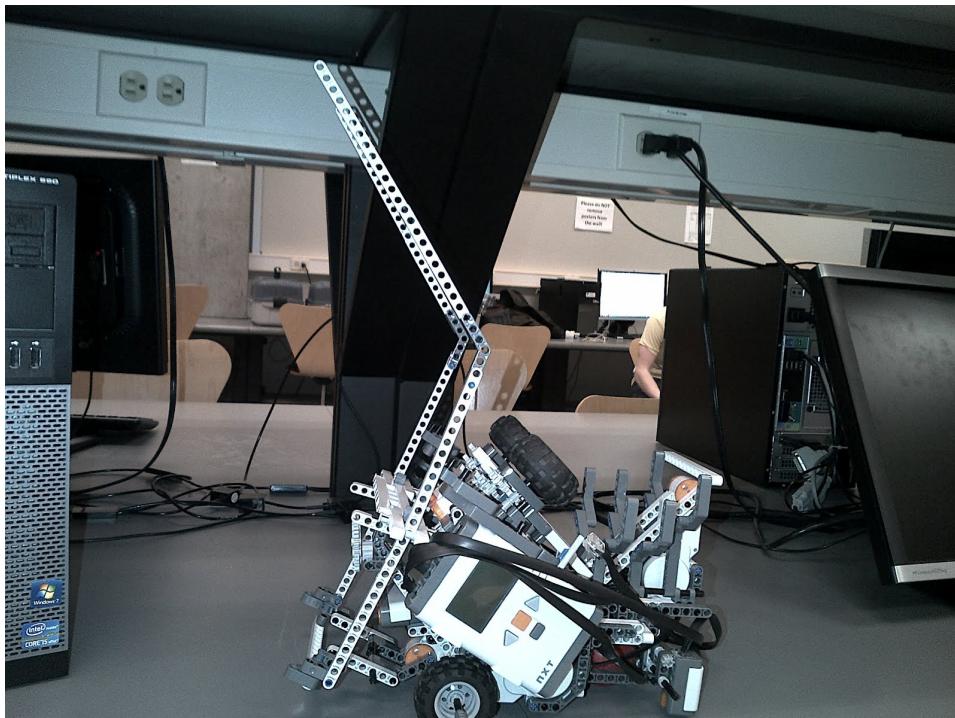
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v5 - 30.03.12 - Defense Mechanism v1

- The defense mechanism was added to the robot which will rotate with the help of the motor situated in front of the robot.
- The sticks are seated on the robot towards the back of the robot and as the motor turns, they will stretch out vertically, blocking the hoop



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v6 - 03.04.12 - Defense Mechanism v2

- A new defense mechanism was added to the robot where two strings will pull down a set of sticks held together which will deploy the sticks high up.
- The light sensors are moved from the back of the robot to right behind the wheels, under the bricks.

