



New Covenant Christian Academy  
Home School Robotics Club  
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Forest Hill, MD 21050  
<http://www.techbrick.com>

TechBrick FLL Team 10, Bel Air, MD

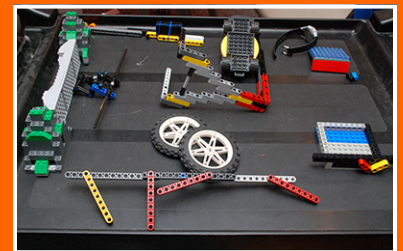
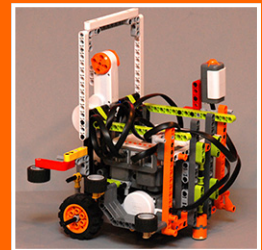
## MEET 'THE CUBE'

### ROBOT DESIGN

- ◆ Strategists expressed need for a small, compact robot, able to make tight turns, and desire to use touch and light sensors
- ◆ Compact cube form
- ◆ Embedded light sensor
- ◆ Vertically mounted motor for attachments
- ◆ Two thick wheels
- ◆ Mounted cylindrical skid pad
- ◆ Sturdy, well-built frame
- ◆ Attachable plow connected to touch sensor
- ◆ Unique orange wheel hubs
- ◆ Multi-use attachments

### PROGRAM DESIGN

- ◆ Strategists planned out mission combinations and object placement
- ◆ Light calibration program
- ◆ Light sensor detects black base line to help identify when robot leaves base
- ◆ One program uses a touch sensor to stop the robot
- ◆ Use of touch sensor to change robot direction
- ◆ Multi-mission program to deliver wave turbine and retrieve truck
- ◆ Rotation sensor measures in degrees to make robot travel very specific distances
- ◆ Speed lowered when turning sharply to increase accuracy
- ◆ Curve programming used to align power grid to black road in order to not lose contact with the power grid
- ◆ Programs loaded onto NXT in reverse order to minimize transition times during competition



## MEET THE TECHBRICK TEAM

**Builder Specialists:** Jonathan Ciavolino, Cole Dinunno and Caitlin McInahan,  
**Program Specialists:** KC McInahan and Andy Rodriguez  
**Research Specialists:** Alie Hruz, Nate Berø and Zach White  
**Strategists:** Emily Klein and Jonathan Shulgach

