**Team: #32839 Bubble Narwhals**

**Robot Design**

1. **Mechanical Design:**

**A.1. Robot Base**

* Square shaped and largely symmetric in geometry and weight distribution.
* Short and keeps the center of gravity close to the ground and in between wheels.
* Flexible enough to add mission specific attachments.
* Protected by bumpers on all sides to clear path, increase stability of wheels, cover the light sensors and to properly align to the field walls during the missions.

**A.2. Attachments**

* Seven attachments are designed to carry out one or more specific missions.
* Designed as pin less or with one or two pins so they can be quickly attached to base.
* Some attachments use medium motors, gears and/or rubber bands to transmit motions. Others are used for functions like hold, push and grab.

1. **Software Design:**

**B.1. Programming Conventions and Change Management**

* Naming conventions are used for MyBlocks (MB\_\*) and programs (P\_\*).
* Development and final versions are managed within a defined folder structure.
* Comments within programs explain the purpose and logics.

**B.2. MyBlocks**

* Repeatable and often used functionalities were turned into MyBlocks.
* Main MyBlocks: Move straight for specified inches, Turn specified degrees, Align to Black or White line and Follow the lines.
* Gyro sensor, two color sensors and deeper logics are used to function accurately.
* Development and final versions are managed within a defined folder structure.

**B.3. Mission Programs**

* Each mission uses its own program with mission specific logics and MyBlocks.
* Seven missions with 155 max points could be executed within the allotted time.
* Need further tweaking to achieve more missions.