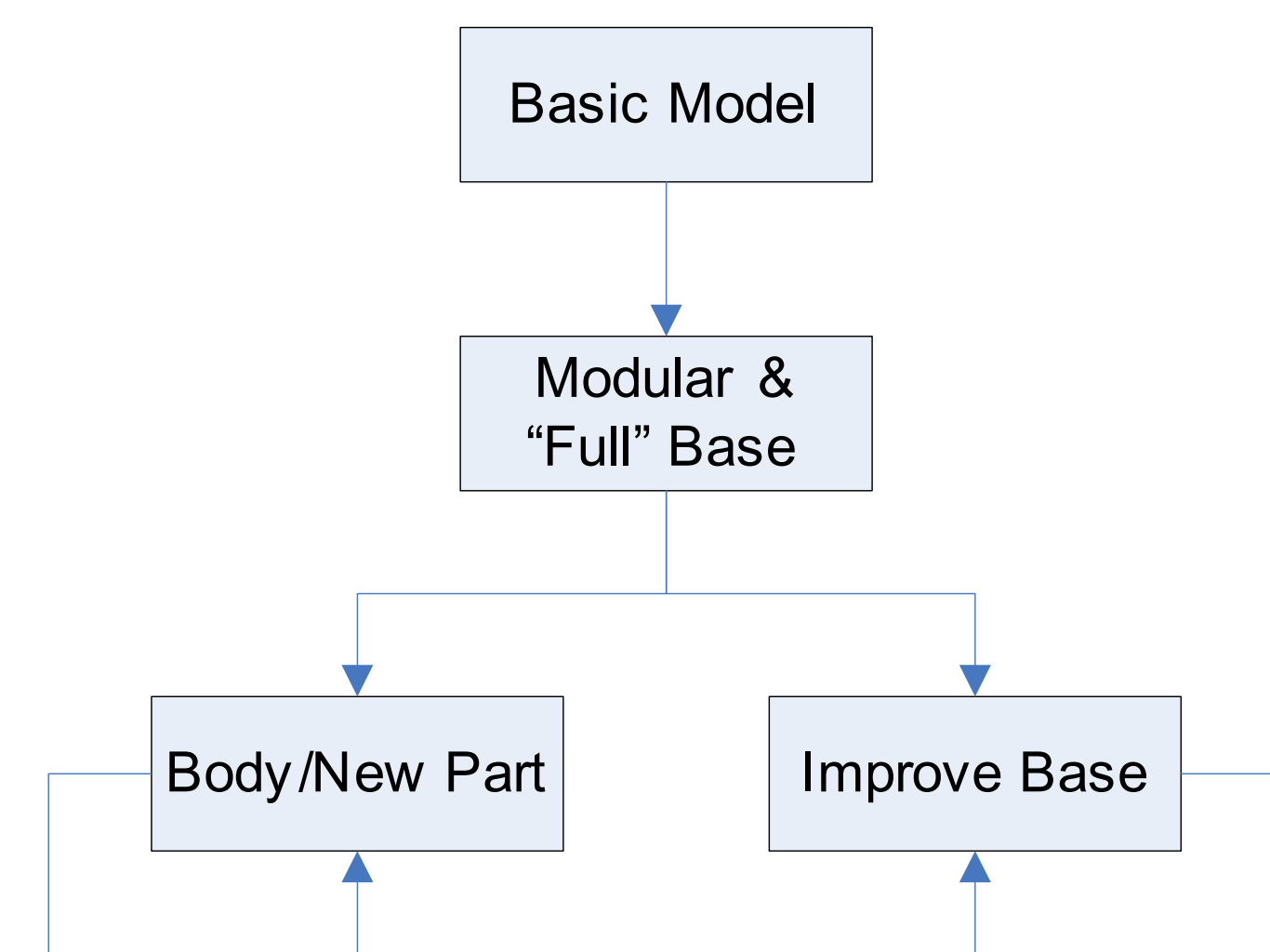




## Mechanical Team Steps

- Design initial structure
- Order VEX parts
- Build robot and module inserts, modifying when needed



## Design Challenges

- Maximize number of modules while keeping robot stable
- Distribute weight appropriately throughout robot
- Add modules easily with minimal effort

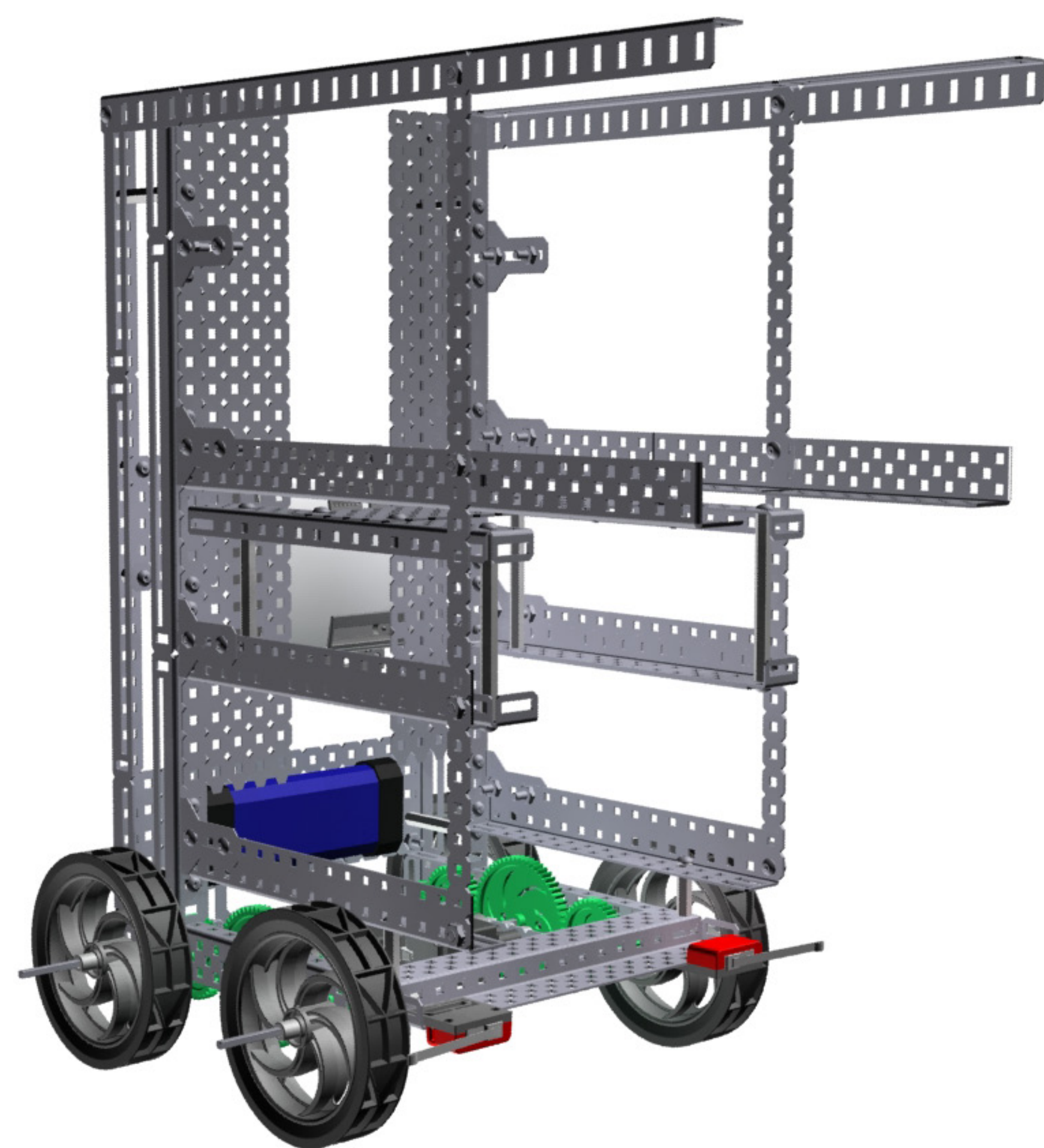
## Mechanical Problems Encountered

Obstacle: The back is weighted down  
 Solution: spread wheels further apart to redistribute weight

Obstacle: The robot veers to the right  
 Solution: readjust wheel alignment on the base

Obstacle: Large gears are too close to floor  
 Solution: Use bigger wheels to lift robot higher

Obstacle: Gear ratio is incompatible with needs of robot  
 Solution: Change gear ratio to slow the robot



The Assistive Robotics Team (IPRO 334) is faced with the problem of creating a prototype for a robot meant to be used in a hospital setting or assisting the elderly. The robot should be modular so that future improvements and applications can be easily added. The focus of this semester will be on mobility and interfacing. Other modules may be designed and prototyped throughout the course of the semester. Our progress, resources, and results will be compiled and presented to our professor's department at the Institute of Design.

## Semester Goals

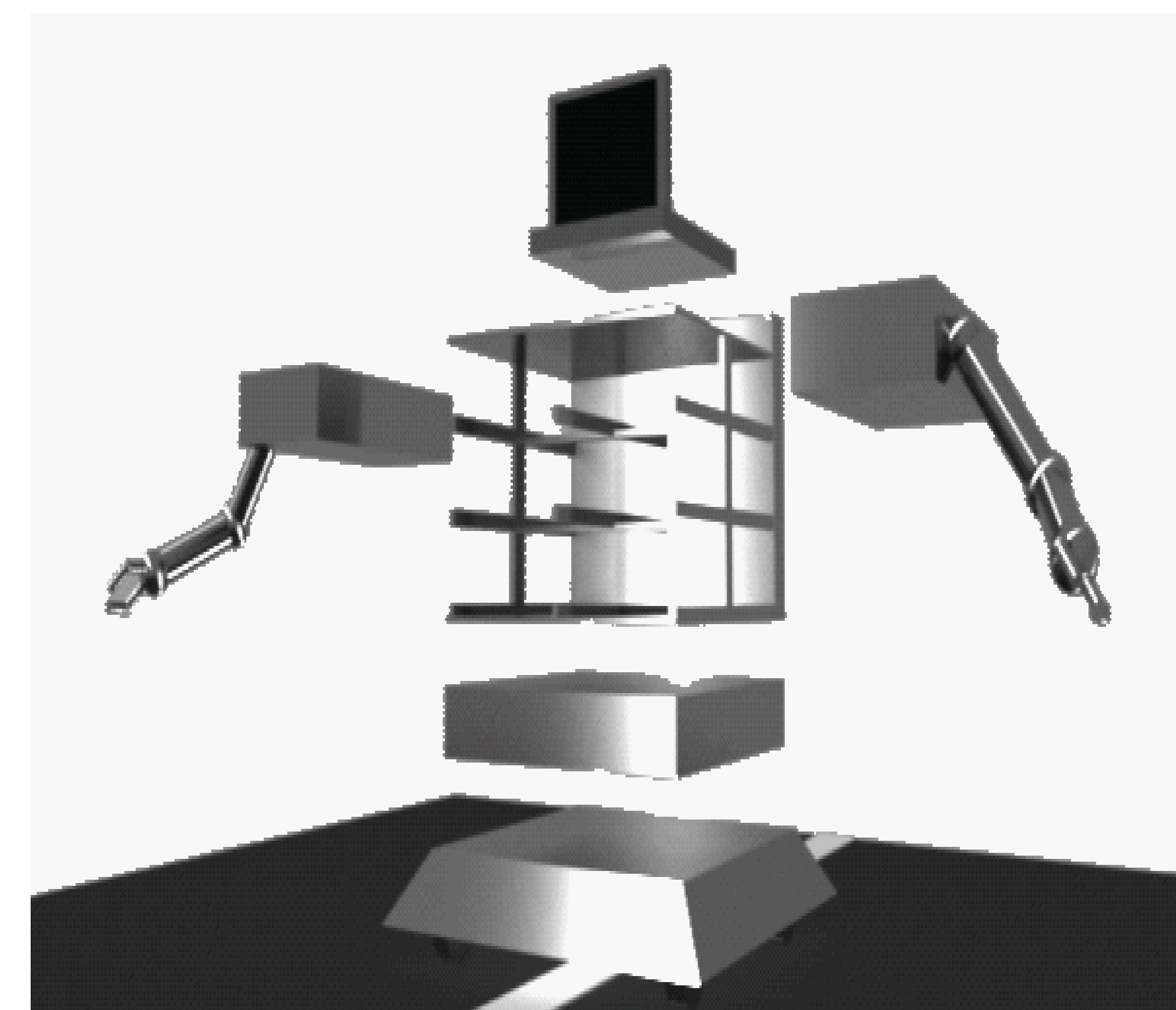
- Create a prototype of a robot that is modular in design.
- Enable the robot to deliver an item or message between two points
- Construct a module that demonstrates how future modules must be designed to be powered and identified by the robot.

## Future Goals

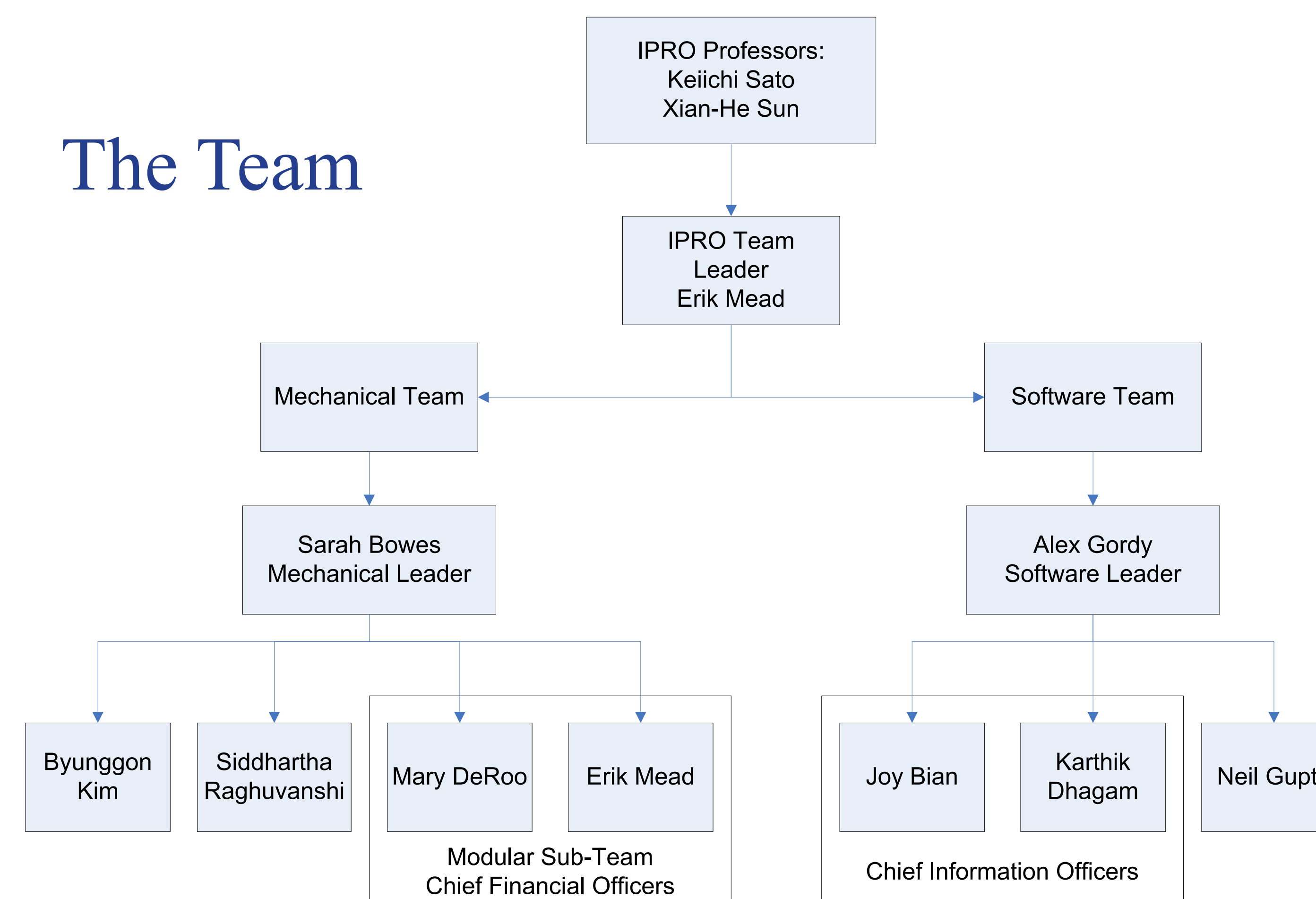
- Develop modules that would benefit the robot in its task of elderly care, such as face recognition or arms and hands for handling medicine.
- Facilitate interfacing between the robot and a person, possibly through a touch screen.

## Future Obstacles

- Building a to-scale model of the robot
- Creating an interface between the user and the robot
- Designing more advanced robot algorithms and modules
- Ethical Dilemmas
- Safety
- Job Opportunity
- Efficiency
- Business



## The Team



## Software Problems Encountered

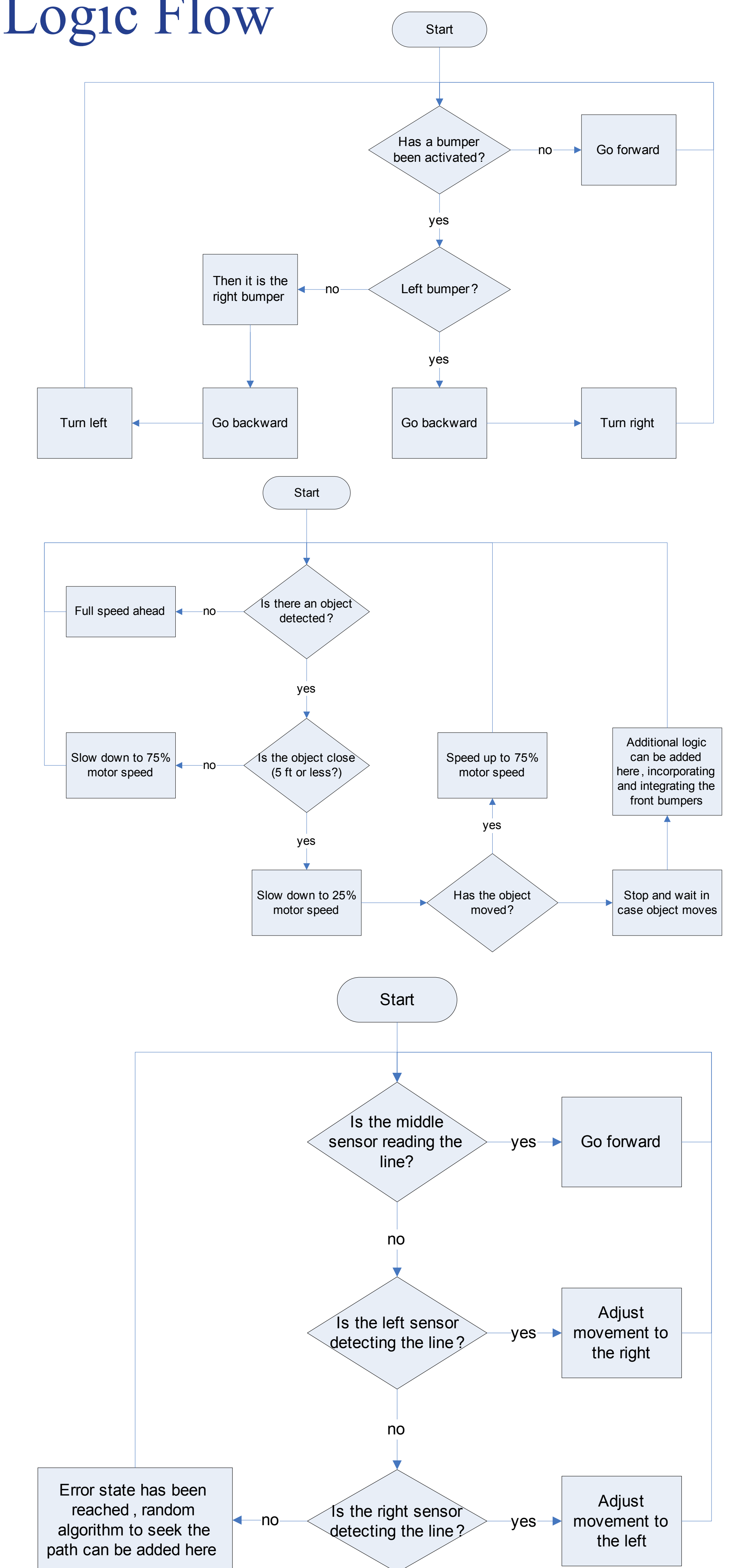
Obstacle: Code divided amongst the team—time taken for development, documentation, and testing varied on the complexity of the algorithm  
 Solution: Through the help, advice, and support of the other team members these tasks were accomplished successfully

Obstacle: Testing was delayed by the availability and functionality of the robot, work space, and equipment  
 Solution: Communication and flexibility was necessary to ensure that the area was available and the equipment was present and functional

Obstacle: Lack of RobotC documentation slowed down problem solving  
 Solution: Searching for online resources such as RobotC wikis, forums, and testing segments of code through trial and error

Obstacle: Began the semester learning Microsoft Robotics Studio, switched to Vex Robotics kit, used EasyC software, and later RobotC

## Logic Flow



## Software Team Steps

