**IMPORTANT**:

**Total bullet strategy behaviors**: 5

1. DistanceBased – adjusts bullet power based on how far the target robot is.
2. LightFast – focuses on low-power, quick shots.
3. PowerfulSlow – focuses on high-power, slow shots.
4. Medium – Average power, and therefore speed shots.
5. HitRateBased – adjust the power based on hit rate.

**Additional genetic parameters**:

1. farDistance – the cutoff distance for high-power vs. low-power shots.
2. k

**Additional non-genetic parameters**:

1. hits – how many shots have hit another robot.
2. totalShots – the total number of shots fired by the robot.
3. firepower – how strong a bullet should be. This is used in methods that need to adjust the power of shots. Default value is 1.
4. maxDist – the farthest possible distance two robots can be from one another.

**BulletStrategy(ScannedRobotEvent e)**

Narrative:

Precondition:

Postcondition:

If bulletStrategy is distance

Call DistanceBased(e)

Else if bulletStrategy is light

Call LightFast(e)

Else if bulletStrategy is powerful

Call PowerfulSlow(e)

Else if bulletStrategy is medium

Call Medium(e)

Else if bulletStrategy is hit

Call HitRateBased(e)

Else

Report an invalid bullet strategy

**DistanceBased(ScannedRobotEvent e)**

Narrative:

Precondition:

Postcondition:

If e.distance / maxDist is less than or equal to 0.5

Set firePower equal to firePower \* (1 + (1 – e.distance / maxDist))

Else

Set firePower equal to firePower \* (1 – e.distance / maxDist))

Clamp firePower between 0.1 and 3.0

Fire(firePower)

**LightFast(ScannedRobotEvent e)**

Narrative:

Precondition:

Postcondition:

Fire(1)

**PowerfulSlow(ScannedRobotEvent e)**

Narrative:

Precondition:

Postcondition:

Fire(3)

**Medium(ScannedRobotEvent e)**

Narrative:

Precondition:

Postcondition:

Fire(2)

**HitRateBased(ScannedRobotEvent e)**

Narrative:

Precondition:

Postcondition:

If hits / totalShots is greater than or equal to 0.8

Increase firePower by 0.1

Else

Decrease firePower by 0.1

Clamp firePower between 0.1 and 3.0

Fire(firePower)

Increment totalShots

**onBulletHit(BulletHitEvent e)**

Narrative:

Precondition:

Postcondition:

Increment hits by 1