AVENGER

A ROBOT BY IFTEDA AHMED

IT WON'T MESS WITH YOU UNTIL YOU MESS WITH IT.

- MOVES CONSTANTLY
- TARGETS WHEN MESSED WITH
- FIRES MULTIPLE BULLETS AT A TIME

MOVEMENT

```
double moveAmount; // instance variable: How much to move
public void run()
{
        // Initialize moveAmount to the maximum possible for this battlefield; - 1 to avoid hitting walls
        moveAmount = Math.max(getBattleFieldWidth() - 1, getBattleFieldHeight() - 1);
        // turnLeft to face a wall, then continue moving
        turnLeft(getHeading() % 90); ahead(moveAmount); turnRight(90);
        //keep moving and scan
        while (true) {ahead(moveAmount); turnRight(90); scan();}
}
```

TARGETING (PART I)

```
String trackName; // instance variable: Name of robot we are currently tracking
double gunTurnAmount; // instance variable: How much to turn gun
public void run()
{
        setAdjustGunForRobotTurn(true); // Allow gun to turn independent
        from robot's turns
        trackName = null; // not tracking anyone just yet
}
```

TARGETING (PART II)

```
public void onScannedRobot(ScannedRobotEvent e) {
        //fire multiple bullets of mild power
        fireBullet(5); fireBullet(4); fireBullet(3);
        //if robot is within 100 pixels, move back
        if(e.getDistance() <= 100) { back(100); }
        // If we have a target, and this isn't it, return immediately  so we can get more ScannedRobotEvents.
        if (trackName != null && !e.getName().equals(trackName)) { return; }
        // If we don't have already have a target, set this robot as our target.
        if (trackName == null) {
        trackName = e.getName();
        // Postion gun toward target
        gunTurnAmount = normalRelativeAngleDegrees(e.getBearing() + (getHeading() - getRadarHeading()));
        turnGunRight(gunTurnAmount);
        turnRight(e.getBearing()); return; } // turn and end if statement }
```

WHY "AVENGER"

```
public void
onHitByBullet(HitByBulletEvent e) {
        // Set target
        trackName = e.getName();
        gunTurnAmount =
        normalRelativeAngleDegrees(
        e.getBearing() + (getHeading()
-       getRadarHeading()));
        turnGunRight(gunTurnAmount);
        fire(5);
        }
```

```
public void onHitRobot(HitRobotEvent e) {
        // Set target
        trackName = e.getName();
        // Target, fire, and back up.
        gunTurnAmount =
        normalRelativeAngleDegrees(e.
        getBearing() + (getHeading() -
        getRadarHeading()));
        turnGunRight(gunTurnAmount);
        fire(5);
        back(50);
        }
```

ADVICE/LEARNING FROM MY MISTAKES

- Find appropriate fire power & # of bullets.
- Make scan arc visible.
- Test code frequently – one alteration at a time.
- Just keep swimmin'.

FAULTS & GOALS
(*AHEM* TO NAME A FEW)

- Improve targeting technique
  - be able to efficiently track and hit fast-moving robots
  - beat walls 80%+
- Figure out how to handle being cornered/surrounded by multiple robots
  - new method that fires like crazy?