Project Hecate

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Navigation

- QLearning qLearning
- ros::NodeHandle nh
- geometry_msgs::Twist twistMessage
- ros::Publisher velocityPublisher
- ros::Subscriber distanceList
- ros::Subscriber sub_odom
- TurtlebotStates turtlebotStates
- int reward
- bool stored
+ doube x
+ double y
+ double z
+ double roll
+ double pitch
+ double yaw
+ double x_goal
+ double y_goal

+ Navigation()
+ ~Navigation()
+ void testRobot(double, double, double, QLearning&, std::vector<int>, ros::Rate)
+ void trainRobot(std::string, int&, int&, int, int&, ros::Rate, int)
+ int getStateIndex(std::vector<int>)
+ void action(int, bool&, int&, int&)
+ void environmentReset()
+ void demoAction(int)
+ void dom(const nav_msgs::Odometry::ConstPtr&)

Uses →

TurtlebotStates

- std::vector<int> laserState
- bool collisionStatus
- double previousNearest

+ TurtlebotStates()
+ ~TurtlebotStates()
+ std::vector<int> returnLaserState()
+ bool flagCollision()
+ void findLaserDepth(const sensor_msgs::LaserScan::ConstPtr&)

QLearning

- std::vector <std::vector<double>>
- double epsilon
- double alpha
- double gamma
- int pauseGoal
- bool qTableGood

+ QLearning()
+ void setEpsilon(double)
+ double getEpsilon()
+ void setQtable(std::string)
+ void getQtable(std::string)
+ void qLearn(int, int, int, double)
+ void robotLearn(int, int, int, int)
+ void testStoreQ()
+ int demo(int, bool, double)
+ int chooseAction(int)