Navigation

- nh : ros::NodeHandle
- msg : geometry_msgs::Twist
- velocity : ros::Publisher
- depthBuffer : ros::Subscriber
- depth : Turtlebotstates
- reward : int
- collisionStat : bool
- q : Qlearning

+ Navigation()
+ ~Navigation()
+ navmain(std::string path):void
+ navmain2(std::string path):void
+ findStateIndex(std::vector<int> state):int
+ envReset():void
+action(int action, bool &colStat, int &reward, int &nextState):void
+ demoAction(int action): void
+ envPause():void
+ envUnPause():void
+ returnReward: int

Turtlebotstates

- collisionStatus:bool
- laserStates:std::vector<int>

+ Turtlebotstates()
+ ~Turtlebotstates()
+ callDepth(const sensor_msgs::LaserScan::ConstPtr& msg):void;
+ colloisionCheck():bool
+ setCollision():void
+ returnLaserState():std::vector<int>

Qlearning

- epsilon : double
- alpha : double
- gamma : double
- qTable : std::vector<std::vector<double>>

+ Qlearning()
+ ~Qlearning()
+ learnQ(int state, int action, int reward, double val) : void
+ chooseAction(int index) : int
+ learn (int si, int act, int rew, int nsi):void
+ returnEpsilon() : double
+ setEpsilon(double e) : void
+ storeQtable(std::string path) : void
+ loadQtable(std::string path) : void
+ demo(int index) : int
+ testStoreQ() : void

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+ testStoreQ() : void