ENPM808X Final Project

FrontierExplorer -nh: ros::NodeHandle -mapSub: ros::Subscriber -velMsg: geometry_msgs::Twist -velPub : ros::Publisher -laserRangeThreshold: float -slamMap: Map -frontierMarkerPub: ros::Publisher -reachAvoidPub: ros::Publisher -frontierClusterPub : ros::Publisher -frontierCluster : vector<vector<pair<int. int>>> -allFrontierPub: ros::Publisher -frontierClusterPub: ros::Publisher -turtleFrameListener: tf::TransformListener -reachAvoid : std::vector<std::pair<double, double>> +FrontierExplorer(); +~FrontierExplorer(); +processOccupancyGrid(constnav_msgs::OccupancyGrid::ConstPtr&): void +explore(): void +rotate360(): void +getNearestCluster(std::vector<std::pair<double, double>>): int +checkReachAvoid(std::pair<double, double>): bool +moveTurtle(std::vector<std::pair<double, double>>, int): void +publishFrontierPoints(int): void +visualizeClusterCenters(vector<pair<double,double>>,int): void +visualizeClusterFrontiers(): void +visualizeReachAvoid(): void

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-mapSet : bool
-mapHeight: int
-mapWidth: int
-mapReso: float
-map : vector<vector<MapNode>>
-origin: geometry_msgs::Point
- frontierCluster : std::vector<std::vector<std::pair<int, int>>>
+Map()
+~Map()
+setMapSet(bool): void
+getMapSet(): bool
+getmapHeight(): int
+getmapWidth(): int
+getmapReso(): double
+setmapHeight(int): void
+setmapWidth(int): void
+setmapReso(double): void
+setOrigin(geometry_msgs::Point): void
+getOrigin(): geometry_msgs::Point
+getMap(): vector<vector<MapNode>>
+updateMapParams(int, int, double, geometry_msgs::Point): bool
+updateMap(int, int, double, geometry_msgs::Point
, const nav_msgs::OccupancyGrid::ConstPtr & ) : void
+getFrontiers(): int
+getClusters(int): int
+getClusterCentroids(): std::vector<std::pair<double, double>>
+getFrontierCluster(): const std::vector<std::vector<std::pair<int, int>>>
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MapNode
-x : float
-y: float
-probability: int8_t
-isFrontier: bool
-frontierIndex : int
+MapNode()
+~MapNode()
+getX(): float
+getY(): float
+getProbability(): int8_t
+setX(float): void
+setY(float): void
+setProbability(int8_t): void
+getisFrontier(): bool
+setisFrontier(bool): void
+aetFrontierIndex(): int
+setFrontierIndex(int): void
```