## **UML Class Diagram**

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## ObstacleMap NodeParam + I · int - currentNode : vector<double> + w · int - parentNode : vector<double> - robotRadius : double - aCost : double <<constructor>> - hCost : double + ObstacleMap() - totalCost : double + ObstacleMap(x:int, y:int) - theta : double - dtheta : double <<destructor>> - dx : double + ~ObstacleMap() - dv : double <<methods>> + setRadius(radius:double): void <<constructor>> + getRadius(): double + NodeParam() + createRectangles(): bool + createCircles(): bool <<destructor>> + createTables(): bool + ~Nodeparam() + drawBoundary(): bool + createMap(): cv::Mat <<methods>> **AStar** + setCurrent(current : vector<double>) : void + getCurrent(): vector<double> - node : NodeParam + setParent(parent : vector<double>) : void - rpm1 : double + getParent(): vector<double> - rpm2 : double + setGCost(costToGo : double) : void - dt : double + getGCost() : double <<constructor>> + setHCost(costToCome : double) : void + AStar() + getHCost(): double + setTotalCost(total : double) : void + AStar(rpm1Val : double, rpm2Val : double, dtVal : double) + getTotalCost(): double <<destructor>> + setTheta(th : double) : void + getTheta(): double + ~AStar() + setDTheta(dth : double) : void + getDTheta(): double <<methods>> + setDx(dX : double) : void + backTrack(backList : vector<vector<vector<double>>>) : vector<vector<double>>> + getDx() : double + setDy(dY : double) : void + motionModel(): vector<vector<double>> + aStar(startPoint : vector<double>, goalPoint:vector<double>) + getDy(): double : vector<vector<double>>>

+ rosTurtle(rosInputs : vector<vector<double>>>) : void