# UML  Class Diagram

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## ObstacleAvoidance

- nh: ros::NodeHandle
- LaserScan: ros::Subscriber
- obstacle_present: bool
- linearVel : float
- angularVel : float

+ ObstacleAvoidance( )
+ ~ObstacleAvoidance( )
+ checkObstacle( ) : bool
+ setObstacleDetected(bool): void
+ getObstacleDetected( ) : bool
+ LaserScanCallback(sensor_msgs::LaserScan::ConstPtr)

## DetectBall

- ros::NodeHandle nh
- bool ObjectDetected
- cv_image: cv::Mat
- mask_image: cv::Mat
- hsv_image: cv::Mat
- contours_array: std::vector<std::vector<cv::Point>>
- kinect_subscriber: ros::Subscriber

+ detectBall( )
+ ~detectBall( )
+ kinectCallback(sensor_msgs::Image::ConstPtr) : void
+ getBallDetected( ): bool
+ setBallDetected(bool) : void
+ templateMatching(): bool
+getCvImage() : cv::Mat

## Turtlebot

- NodeHandle nh;
- velocity_pub: ros::Publisher
- velocity : geometry_msgs::Twist
- obstacle_avoidance : ObstacleAvoidance
- detect_ball : DetectBall
- ball_present : bool
- publish_rate : int

+ Turtlebot()
+ ~Turtlebot()
+ moveAhead(float) : void
+ turn(float) : void
+ collect() : void
+ moveTurtle() : void
+ reset(): void
+ setBallPresent(bool): void
+ getBallPresent(): bool