With the LIDAR the different observations the turtlebot works with are :

Observation	Description	Value if fixed
Seq	Number of the sequence the turtlebot is reading	
Stamp	A clock	
frame_id		sonar2_link
angle_min	The angle the observation starts with	-2.3561899662
Angle_max	The angle the observation ends with	2.3561899662
Angle_increment	The angle between 2 consecutive observation	0.248019993305
time_increment		0.0
scan_time		0.0
range_min	The minimal distance between the turtlebot and a wall	0.0599999986589
range_max	The maximal distance between the turtlebot and a wall	20.0
Ranges	List of 20 values, this values are the distance between the turtlebot and the walls evaluated by LIDAR	
Intensities	List of 20 values, this values are the intensity of the laser when it comes back to the LIDAR system.	

For the moment we work with the ranges, the turtlebot can chose it next action according to the distance stocked in the ranges list. In the code we can chose how many ranges we take to evaluate the agent's environment : for the moment we use 4 lasers in the 20 available, they are at -135°, -78°, -21°, 36° and 92° if we take the front of the agent as origin. To discretize a distance we use the round function, if the distance is under the minimal distance we fixed at the beginning of the simulation then we consider the agent crashed.