Algorithm 0 :

Message :

Message will be a class that as asked its job will be to allow robot A send a message to robot B.

The message will contain a library of variables saved with each message, The Variables will be Self (The actual sender), ID\_Sender (The robot ID of the sender),ID\_Message (The ID of the message),Time (The time the message was sent ) ,Sender\_Estimated Location(Sender estimated location)

The message will have an option to check if the message was received, we will use a def that gains the information of the robot that sent the message and the message itself, if the all the robots received they will send a message to confirm that which will be stored in ID 1, if all robots -1 will equal the amount of returning messages to ID 1 we will know that all the robots received the message.

We will make 2 more classes named robot and point in order to assist us in the messaging process, Point will be an X,Y location within the matrix of the ring, while the Robot will give us the Robot ID of the sender in order to have the information of which robot is which.

Robot will contain an array of IDs for each robot while the definition will get self and id and to each robot the following variables will be inserted , ID (to know which Robot is which), Can move(To know if static or not), Battery Status (In order to know if the robot need recharge), Private location (The recharge location / starting location), Estimated location(The location within the arena), Massage log (Will receive all the messages to the bot), Private location log (will hold all the robots positions using point def,Neighbors location (Bonus property to know which robots are closest, Time ( in order to add it to any activities the robot does for log record, currently sending (since only one robot can send at a time we use it to make sure no stucking), action time (to get a timer set up for the next action), current zone (the zone which the robot is in, static at most cases).

We will also have the function points which as said will include x and y coordinates inside the matrix (the zone), it will give several functions available within the point to make life easier on us, changing location of a robot function that will simply insert the new x and y coordinate wished in the self x and y coordinates, we will also use point t measure stuff such as destination and intersection information using basic formulas such as a straight line formula or a 2nd dimension formula.

\*(part of the additions are used in following questions but were mentioned now).