INDIVIDUAL CONTRIBUTIONS

DESCRIBE SUCCINCTLY THE SINGLE MOST IMPORTANT CONTRIBUTION (TECHNICAL OR MANAGEMENT) MADE TO THE PROJECT BY EACH STUDENT IN THE GROUP. (PLEASE COMPLETE AS A GROUP - ONE SUBMISSION PER GROUP).

STUDENT	Peter De Jonckheere
Lead in mechanical design for the project including of the modular maze environment and latterly mechanical design of the chassis. Communicated with the mechanical workshop for the modular testing environment, drawing the initial designs and latterly the CAD drawings for 3-D printing. Created the URDF model of the robot used in localization and mapping.	
STUDENT	R. David Dunphy
Lead in implementing initial Robot Operating System (ROS) system architecture. Structured the packages and made the initial ROS nodes. Was the main liaison for ROS implementation and integration throughout the project.	
STUDENT	Andrew Fagan
Lead in implementing our PID control system. Integrated current systems with the used library and was the lead in tuning the PID, first using manual methods, then Ziegler-Nicholls, followed by using the in-built library simulator to tune a replica. Subsequently, implemented the rate control PD following consultation with Dr Gordon Dobie.	
STUDENT	Matthew Gaffney
Lead in designing our bespoke PCB. Carried out the circuit design and used the mechanical design to obtain exact measurements to allow for fitting each component of the robot together. Iterated on the design to ensure the best possible PCB for the third robot which could then be replicated easily.	
STUDENT	Kyle Miller

Lead in implementing our scalable multi-agent communication system. Implemented the thread-safe implementation which allows the protocol to be easily scaled and the use of the Python Socket library which was used to implement the protocol.