**IDP Objectives**

**Mechanical**

* The robot must not have any **sharp edges** and must be safe around humans.
* The robot must be of **modular construction** and use **standard components** where possible to allow easy maintenance and repair in the field e.g. access to exchange motors, modules have plugs/sockets, fixings accessible
* The robot must have the red and green indicator **LEDs clearly visible** and installed on the top of the build.
* The robot must be **well constructed** i.e. not held together with tape and glue, unsupported/unprotected cables, parts not fixed down
* The robot must clearly display the **team number** in a legible font no smaller than 50mm high.
* A complete set of **mechanical drawings** are required of a standard which would allow another engineer to replicate the robot, or carry out repairs.
* The robot must fit entirely in the **start/finish area**.
* Only a **single block** may be transported at a time.

**Electrical**

* The robot must display a **flashing blue light** (2Hz±10%) when (and only when) it is moving.
* The robot must be of **modular construction** and use standard components where possible to allow easy maintenance and repair in the field e.g. access to exchange motors, modules have plugs/sockets, fixings accessible
* The robot must have the **red and green indicator LEDs** clearly visible and installed on the top of the build.
* The robot must be **started in a controlled manner** by pressing a push button switch or entering a command on the workstation.
* All **cabling** must be neatly installed
* **Cable colouring** must conform to the site regulations: red power +, black power -, all other colours can be used for signal/control
* A complete set of **electrical drawings** are required of a standard which would allow another engineer to replicate the robot, or carry out repairs
* Blocks should be clearly identified before they are transported. This should be indicated by illuminating a **red LED for magnetic blocks** and a **green LED for non-magnetic blocks**. The LED should clearly illuminate for >5 seconds while the robot is stationary and installed at the top of the robot.

**Software**

* The robot must display a **flashing blue light** (2Hz±10%) when (and only when) it is moving.
* The robot must be started in a **controlled manner** by pressing a push button switch or entering a command on the workstation.
* A **software print out and flow chart** is required
* Software should be **well-structured** and **well-commented.**
* No information may be entered at the terminal during a run.
* The **same program** must be run after each restart.
* Blocks should be clearly identified before they are transported. This should be indicated by illuminating a red LED for magnetic blocks and a green LED for non-magnetic blocks. The LED should clearly illuminate for >5 seconds while the robot is stationary and installed at the top of the robot.

**General**

* The only interaction permitted is between the robot and a workstation.
* No information may be entered at the terminal or the robot physically handled during a run.
* **Magnetic** blocks should be delivered to the **red** drop off square, **non-magnetic** blocks should be delivered to the **green** drop off square.
* The robot may traverse around the table in any manner, it **does not have to follow the white lines.**
* The robot MUST **return to the start/finish block** at least once after the delivery of the first block. For points, the robot must be fully inside the lines of the start/finish box and stay there for at least 5 sec. Indicate stop-and-stay by having the **blue** LED ON constantly for that duration.
* Blocks will be scored for delivery if it deposits the block in the identified drop off square.
* Teams will be given **5 minutes** to complete the task.