# Setup

## Procedure

1. Press button while on white line to calibrate QTR (IRs can also be calibrated here as stated above)
2. Within 3 seconds, move robot onto back surface to calibrate QTR more.  Completion is indicated by LED on.
3. Place the robot slightly in-front of the starting cross (bottom left corner of landscape grid) facing forwards (should see 3 crosses in-front, NOT 7) and press the button again to start. See Figure 1 (next page) for a visual representation.

## DIP Switches

The DIP switches have been configured as:

* 8. NUMBER SIDE: Find block,  
   ON SIDE: Avoid blocks
* 7. NUMBER SIDE: Predefined medium IR block reading,  
   ON SIDE: Calibrate medium IR block reading, IR calibration happens when calibrating white line for QTRs (Both are equally terrible)
* 6. NUMBER SIDE: All IRs,   
   **ON SIDE: Only front IR**

(Where NUMBER SIDE refers to the switch being on the side of the DIP with numbers printed, and ON SIDE refers to the switch being on the side of the DIP with “ON” printed.)

# Navigation

## Find Block

The robot will search the grid for a block and will try to grab it when it is in sight. If this fails the robot will need to be restarted. If the robot has successfully grabbed the block, it will return to the start point. If the robot reaches the end of its path, the robot will need to be restarted. Path is shown below:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ? | ← | ← | ← | ← | ← | ← | ← |
| → | → | → | → | → | → | → | ↑ |
| ↑ | ← | ← | ← | ← | ← | ← | ← |
| SRT | **→** | → | → | → | → | → | ↑ |

Figure 1: Arrows denote traversal directions. Each square represents a cross on the grid. SRT denotes the starting point and the bold arrow denotes the intial direction from SRT. Although intially travels →, starts facing ↑.

## Avoid Blocks

The robot will traverse to the opposite corner of the grid whilst avoiding blocks that obstruct its path. If the robot has successfully reached the opposite corner, it will return to the start point avoiding the blocks again.