Lego Project

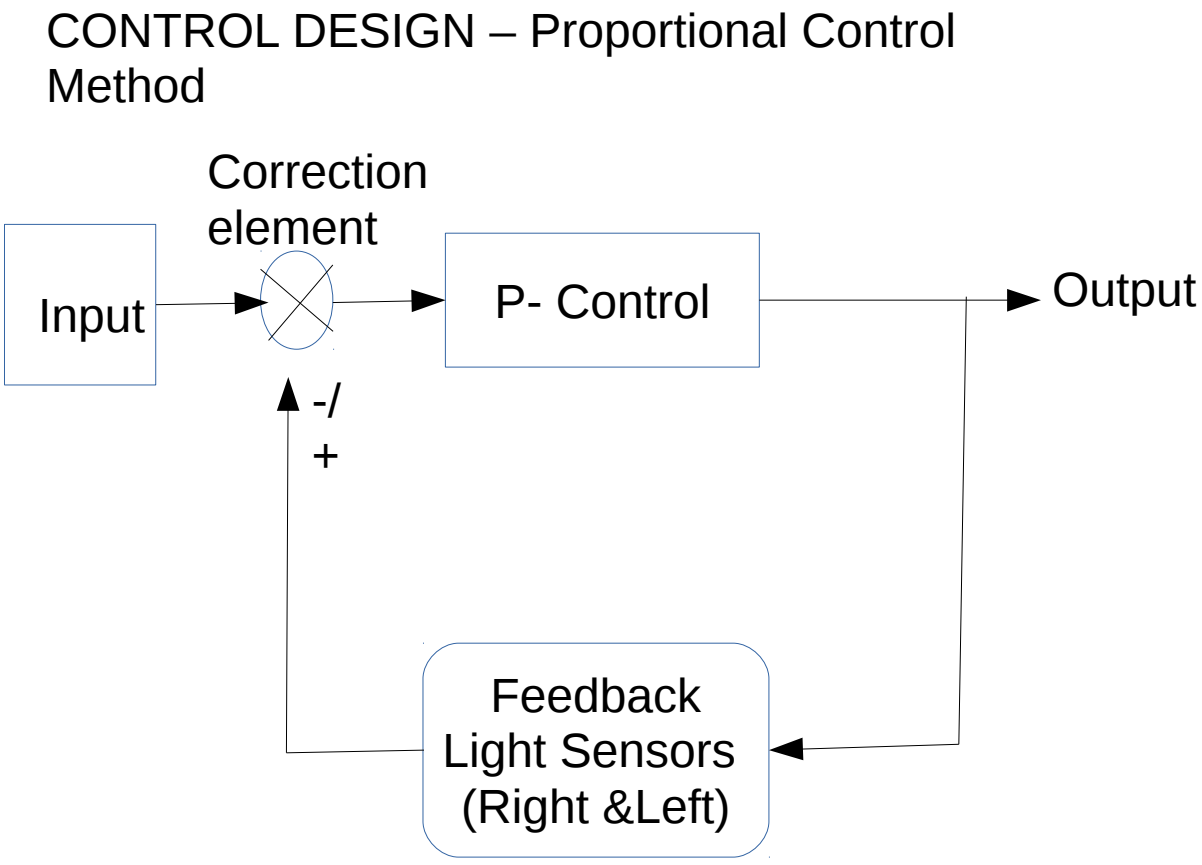
Task: Build a Lego robot that can follow a black line and make complex turns. Robots will be time on different tracks.

Project Description

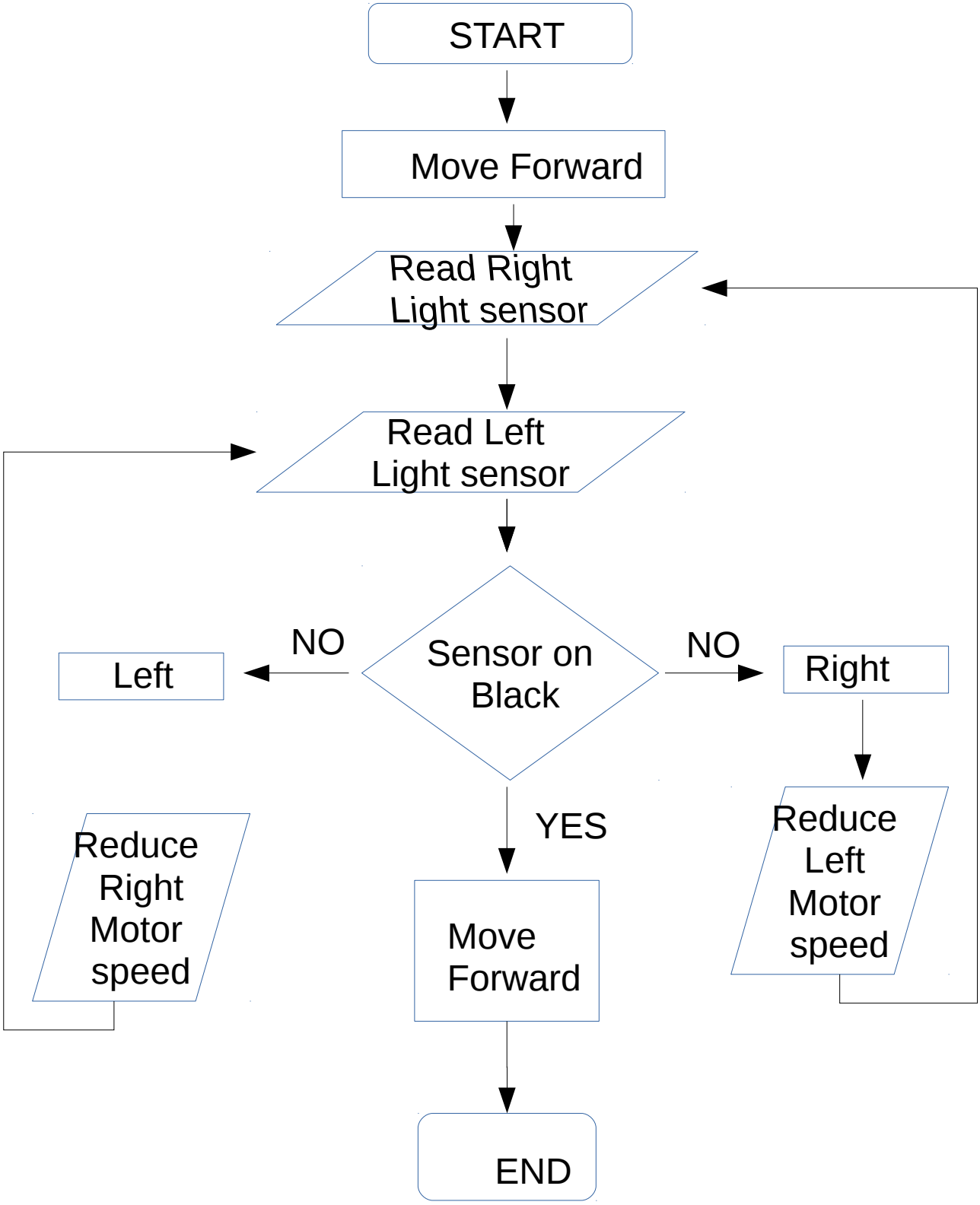
For this task, we built a robot consisting of two motors with one wheel attached to each of the motors. The robot also has a third wheel which is not connected to a motor. This third wheel can move freely in any direction and will make the robot turn depending of the direction that the motors are spinning. On the front of our robot, we placed two light sensors that will detect changes of color in the ground, which in this case is black or white.

In our approach, we place the robot on top of a black line and it goes forward as long as both sensors are detecting white. When only the right sensor is detecting black, it means the robot is going to the left and should turn right to keep following the line. If only the left sensor is detecting black, it means the robot is going right and should turn left. If both sensors are detecting black, it means it crossed an intersection and the robot should continue forward to cross it.

P Control Design



Flow Chart


START
Move Forward
Read Right Light sensor
Read Left Light sensor
Sensor on Black
NO
Left
NO
Right
YES
Reduce Right Motor speed
Move Forward
Reduce Left Motor speed
END