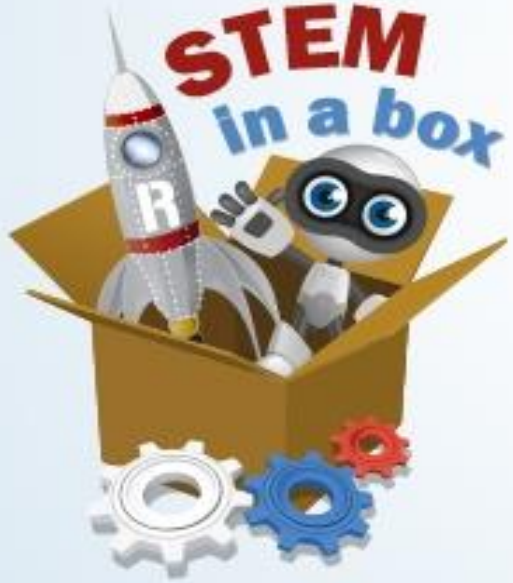

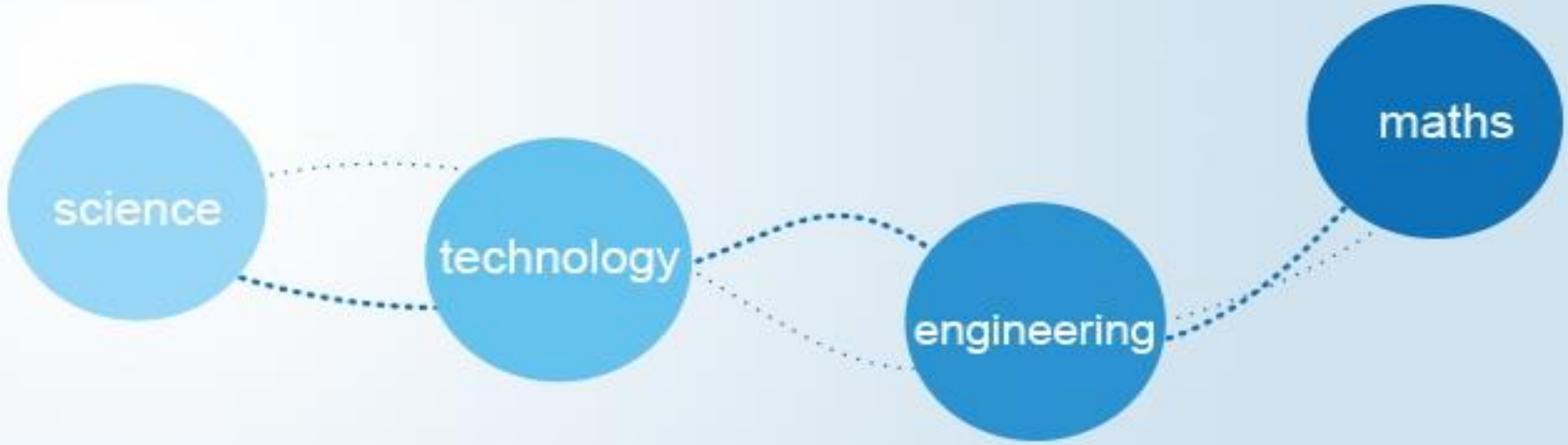

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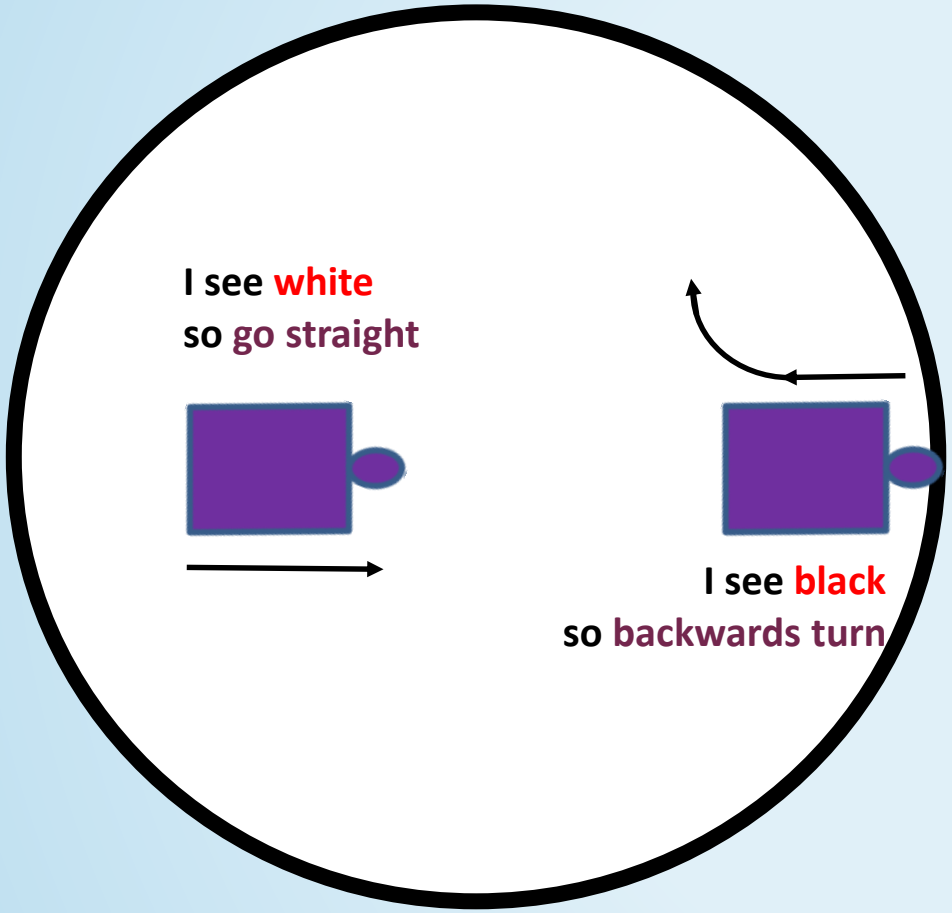
Sumo Algorithm for LEGO NXT Robot

Simple sumo with one colour sensor

Simple sumo with one colour sensor

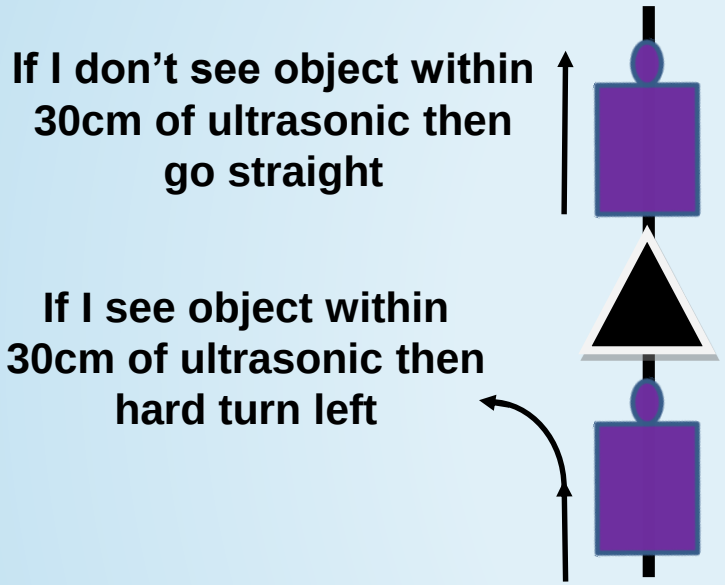


If I see black/blue then reverse turn
If I do not see black/blue then go forward

Programming Instructions

1. Debug View Colour Sensor on Port 2
   - Use the view menu then colour sensor then port
2. Write Code as Below
   - Colour sensor on port 2
   - Motors are port A and C
   - Reverse turn is for 1 rotation only
   - Forwards is “unlimited”
3. Download code on robot that is turned on
4. Run programme on robot and observe if it goes straight on white and reverse turns on black
5. Improve your robots performance:
   - Speed? Increase until it falls out of the ring
   - Type and length of reverse turn? (Turn as fast as possible to get your enemy).

Obstacle Avoidance Algorithm



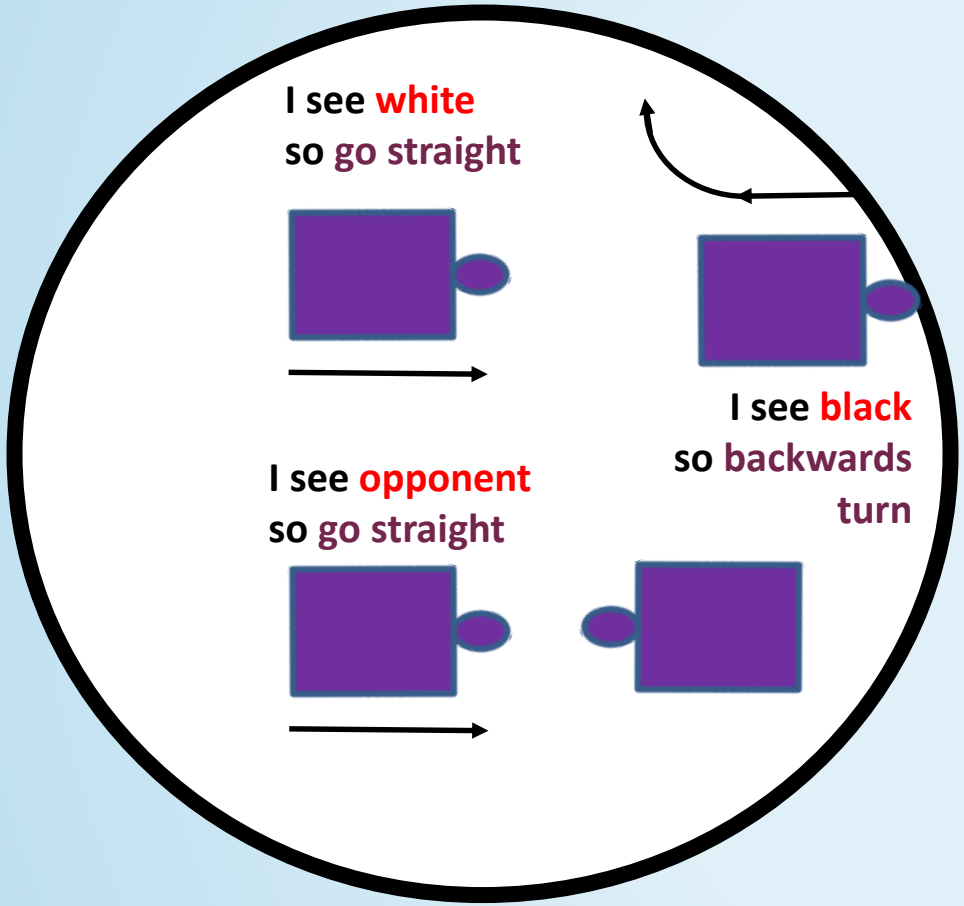
Go forward until the ultrasonic sensor sees an object within 30cm then hard turn left.

For sumo this process is reversed
Turn in circle until the ultrasonic sensor sees an object within 30cm then go straight.

Programming Instructions

1. Debug view ultrasonic sensor on port 3
2. Write code as below
   - If ultrasonic on port 3 is less than 30cm then hard turn left with A motor stopped and C motor going forward
   - Else go forward
   - Motors are port A and C
   - Forwards is "unlimited"
3. Download code on robot that is turned on
4. Run programme on robot and observe if it turns left when it sees an object and goes straight if it doesn't
5. Improve your robots performance:
   -Distance? Increase or decrease the distance of when the robot sees and object then turns

Full sumo with one colour sensor and ultrasonic



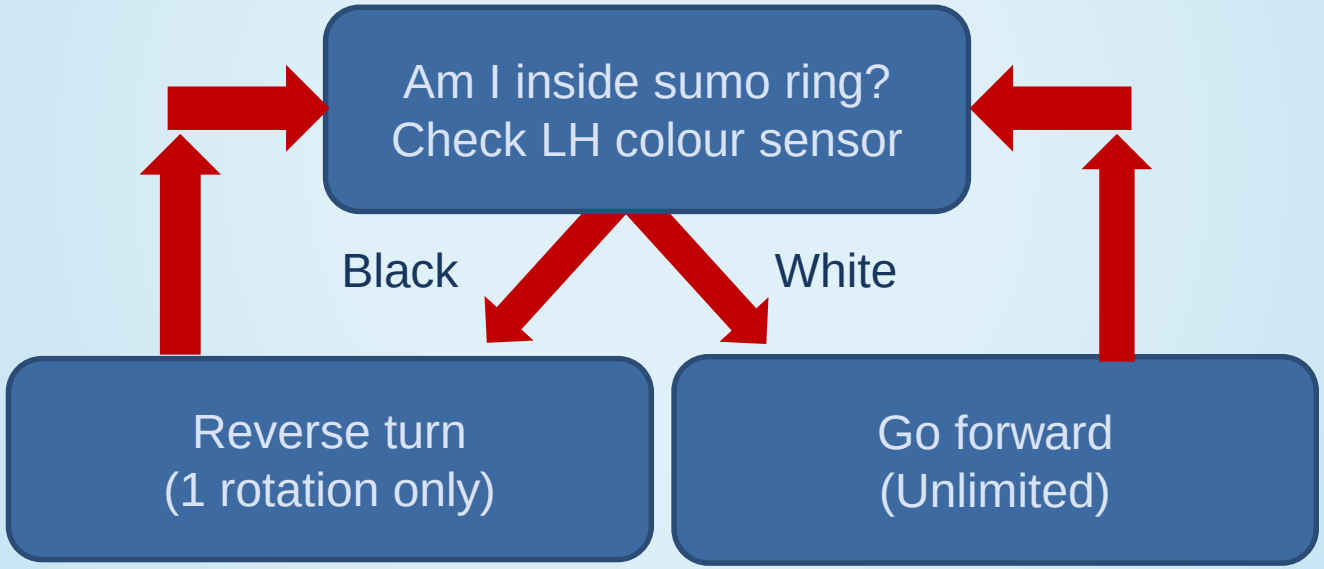
If I see black/blue then reverse turn
If I do not see black/blue then search for opponent.

Programming Instructions

1. Debug view ultrasonic sensor on port 3
2. Debug View Colour Sensor on Port 2
   - Use the view menu then colour sensor then port
3. Write Code as Below
   - Check colour sensor on port 2—if black then reverse turn
   - If not black on colour sensor
   - Check ultrasonic on port 3
   - If ultrasonic sees object less then 30cm then charge forward else forward turn and scan for enemy
4. Download code on robot that is turned on
5. Run programme on robot and observe if it attacks opponent and stays off black
6. Improve your robots performance:
   - Speed? Increase until it falls out of the ring
   - Type and length of reverse turn? (Turn as fast as possible to get your enemy).

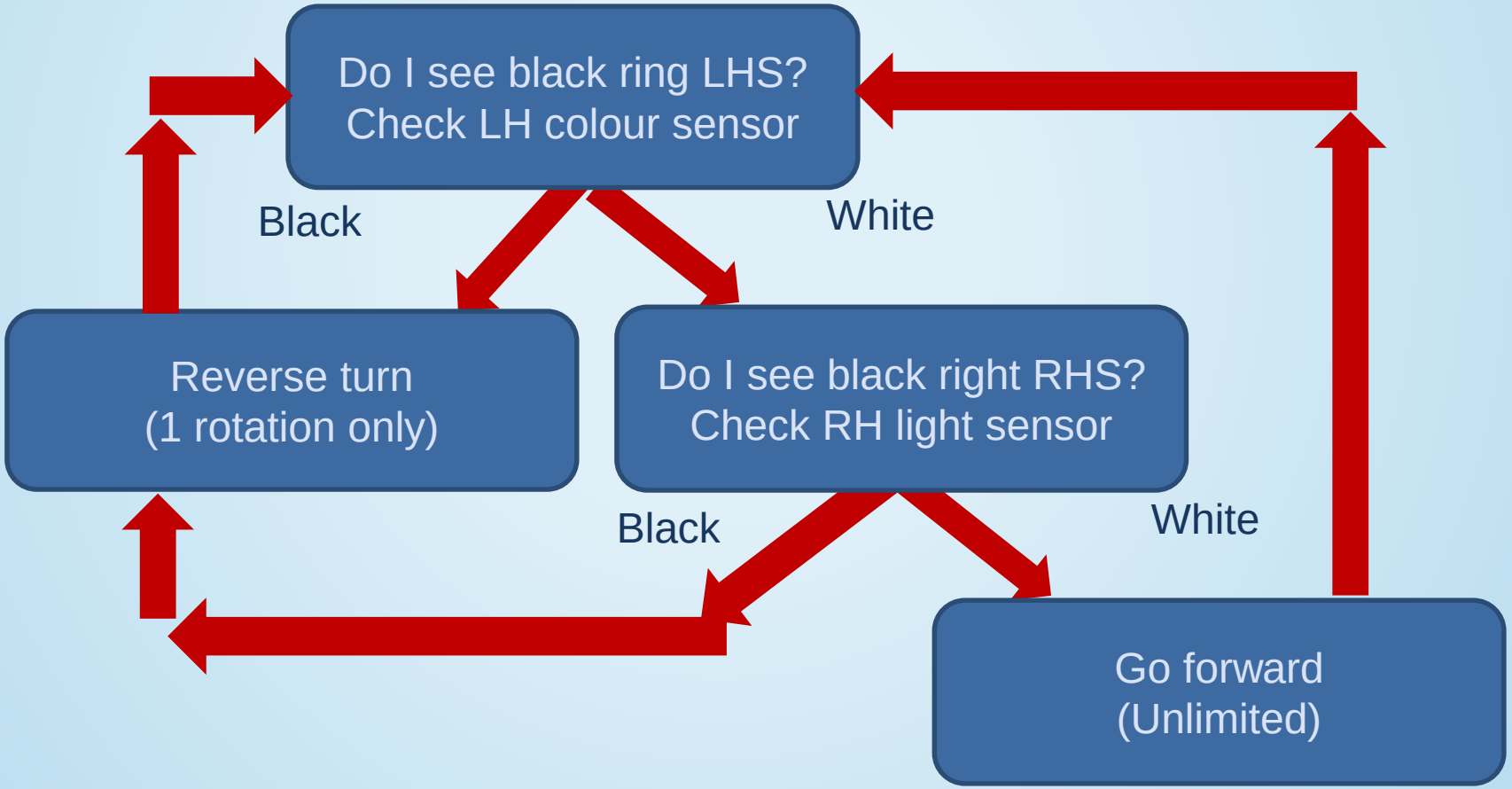
Sumo Algorithm

Single Light Sensor – No Ultrasonic

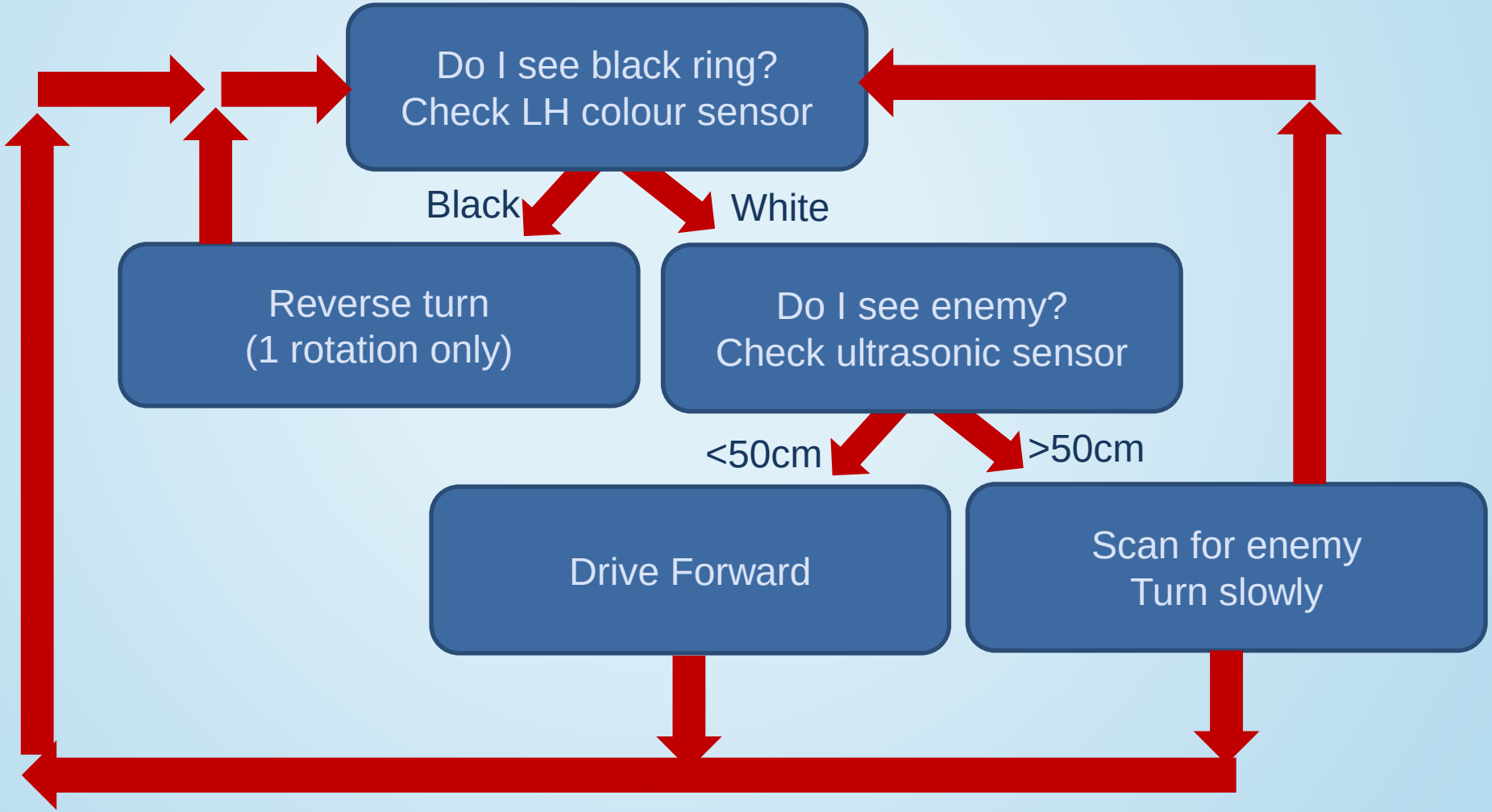


Sumo Algorithm

Two Light Sensors no Ultrasonic



Sumo Algorithm
One Colour Sensor and Ultrasonic



Sumo Algorithm
Two Light Sensors and Ultrasonic