

Pin diagram for a maze-solving robot using the MSP430G2553 microcontroller:

Pin Assignments

- Sensors:

- Left sensor: P1.0 (Analog Input)
- Right sensor: P1.1 (Analog Input)
- Front sensor: P1.2 (Analog Input)

- Motor Control:

- Left motor forward: P2.0 (Digital Output)
- Left motor backward: P2.1 (Digital Output)
- Right motor forward: P2.2 (Digital Output)
- Right motor backward: P2.3 (Digital Output)

Circuit Diagram Description

1. Power Supply:

- Ensure the MSP430G2553 is powered appropriately, typically with 3.3V.
- Motors might require a separate power supply (e.g., 6V or 12V) depending on their specifications.

2. Sensors:

- Left Sensor (P1.0):

- Connect the left IR sensor output to P1.0.
- Connect the sensor's VCC to 3.3V and GND to the ground.

- Right Sensor (P1.1):

- Connect the right IR sensor output to P1.1.
- Connect the sensor's VCC to 3.3V and GND to the ground.

- Front Sensor (P1.2):

- Connect the front IR sensor output to P1.2.
- Connect the sensor's VCC to 3.3V and GND to the ground.

3. Motor Control:

- Left Motor:
 - Connect P2.0 to the IN1 pin of the motor driver.
 - Connect P2.1 to the IN2 pin of the motor driver.
 - Connect the motor to the motor driver's output pins (OUT1 and OUT2).

- Right Motor:
 - Connect P2.2 to the IN3 pin of the motor driver.
 - Connect P2.3 to the IN4 pin of the motor driver.
 - Connect the motor to the motor driver's output pins (OUT3 and OUT4).

1. Pin Configuration:

- Ensure P1.0, P1.1, and P1.2 are set as analog inputs for sensors.
- Ensure P2.0, P2.1, P2.2, and P2.3 are set as digital outputs for motor control.

2. Power Supply:

- Make sure your sensors and motor drivers are powered properly.
- Use appropriate voltage levels for the MSP430G2553 and peripherals.

3. Sensor Calibration:

- Adjust threshold values for sensor readings to suit your specific sensors and environment.

4. Motor Driver:

- Ensure you are using a motor driver like the L298N or equivalent to interface between the microcontroller and the motors.

5. Testing:

- Test each component (sensors, motors) individually before integrating them into the maze-solving algorithm to ensure proper operation.