RoboCar using ESP32

In this project i will be presenting an idea using an ESP32 and some other components to build a line following robot.

Components :

- **Eps32**.
- Two **TT DC motors**.
- One **Motor driver L298N**
- Two **TCRT5000 Infrared Reflective Sensor.**
- One **RC522 RFID**.
- 7.5V batteries to power up the motors.

Circuit design and pins :

Component	Pin on component	Pin on ESP32
RFID RC522	VCC/3.3V	3.3V
	RST	Pin 25 (GPIO0)
	GND	GND
	IRO	None
	MISO	Pin 31 (GPIO19)
	MOSI	Pin 37 (GPIO23)
	SCK	Pin 30 (GPIO18)
	SDA	Pin 29 (GPIO5)
Motor driver L298N	ENA	Battery 5-12V
	GND	GND
	ENA	Pin 11 (GPIO26)
	IN1	Pin 12 (GPIO27)
	IN2	Pin 13 (GPIO14)
	ENB	Pin 10 (GPIO25)

	IN3	Pin 9 (GPIO33)
	IN4	Pin 8 (GPIO32)
IR Senser Right	OUT	Pin 24 (GPIO2)
IR Sensor Left	OUT	Pin 25 (GPIO15

Project description and possible real-world applications :

As mentioned earlier, the idea is a line following robot that uses IR sensors to detect the line whether it should turn left or right, stop or move forward, an nfc reader that can take input and be programmed to react based on that input.
The RoboCar is supposed to be working in a warehouse, drive around and check if the shelves or specific places are occupied or not and send data back to a server using a MQTT protocol that can be accessed by whoever is subscribed. The idea based originally on a real world application and can surely be developed into something bigger and more complicated.