

RealTime Systems Project

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Project Introduction

Team Size: Up to 4 People

Project Theme: Enhancing and Innovating with the “Devastator Tank Robot”

Project Goal:

Optimizing the Robotic Platform with Advanced Hardware Integrations. **Boost the functional capabilities** by augmenting it with innovative sensor and actuator integrations, using the C/C++ programming language.

Overview

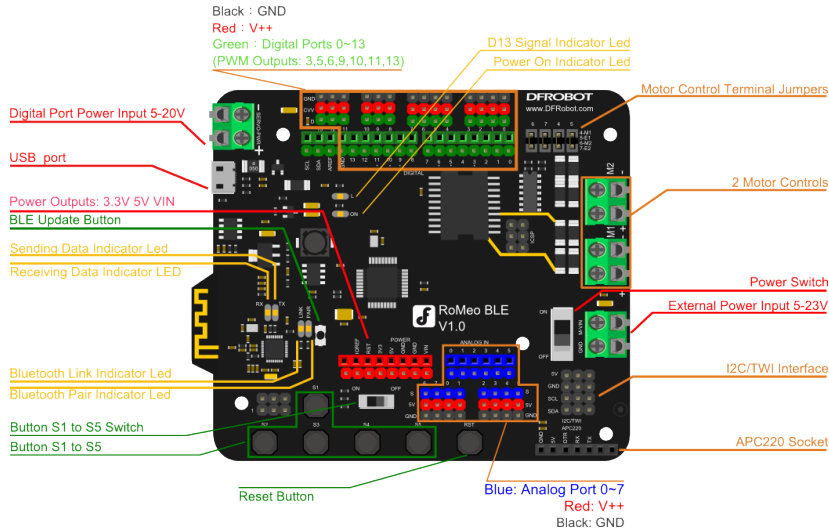


Figure: robotic platform: DFRobot Devastator Tank

The DFRobot Devastator Tank is a mobile robot kit suitable for both educational purposes and hobbyist projects.

- ▶ Versatile and robust
- ▶ Adaptable and expandable
- ▶ Suitable for various age groups and skill levels

RoMeo BLE V1.0



Technical Specifications

Microcontroller: ATmega328

Wireless Communication: Bluetooth 4.0

Digital I/O Pins: 14 pins

Analog Input Pins: 8 pins

PWM Channels: 6 pins

Serial Communication: UART interfaces

Connectors: Various connectors for sensors, servo motors, etc.

Important links

Documentation Board: DFRobot RoMeo BLE

Documentation Assembly: Instruction Manual

Platformio and Bootloader : UNO (RoMeo Board)

Tutorial : Bluetooth Connection

I/O Pins : Youtube Same μ C

Dates

Documentation Submission: January 19th.

Semcon: January 19th. 15:00-17:00

Presentation Date: To be announced.



Little Showcase

Magazin > Falkusht für Informatik > Software Engineering and Management (Master) > SPO 2 > M2 Engineering Application Domains > 262312 & 261272 Real Time Systems > Topics for your real time presentation WS 22/23

Topics for your real time presentation WS 22/23










Explain a realtimes Ssuz-Word with an example and in relation to the Atmel AVR/8Bit family chip-ATMega 128. Duration of the presentation approx. 10-15 minutes, approx. 10 folis

Inhalt info Einstellungen Lernfortschritt Export Rechte

Zurück verwalten Sortieren

Neues Objekt hinzufügen + Seite gestalten

Inhalt

-  Error Tolerant Strategies - Software/Hardware example ABS-System
Freie Plätze: 2
-  I2C Interface with example: Connect a BMP180 Sensor to ATMega128
Freie Plätze: 2
-  Digital I/O with ATMega; example: Trafficlight with input signal from a pedestrian
Freie Plätze: 2
-  Explain the PWM-Modes with ATMega 128. Example: Dimming a LED
Freie Plätze: 2
-  External Interrupt - How to install and use with ATMega 128
Freie Plätze: 2
-  How can we use the "Watchdog" of ATMega 128
Freie Plätze: 2
-  SPI Interface - example AD-Converter MCP 3008 connected to ATMega128
Freie Plätze: 2
-  The A/D-Converter of the ATMega128; Example using the interrupt in C
Freie Plätze: 2
-  Use of timers in a Realtime-System - example: Initialize a 0,1sec interrupt AT Mega 128
Freie Plätze: 2

Tutorial supervision

Office Hours: Tuesdays, as per the schedule.

Office Location: A328

Appointment Scheduling: Marc.Nauendorf@Hs-Heilbronn.de