

**TOBBY
THE
ROBBY**

TEACH OBJECT BUILDING BLOCKS SYSTEM

powered by

NTech Solutions



Small Size ⚡ **Big Performance**
One System ⚡ **Many Solutions**
Affordable Price ⚡ **Professional Design**

TOBBY THE ROBBY - Realize your ideas !

Overview

Dimensions	Diameter: 80mm (84mm with 360° bumper) Height: 40mm (with MMI 65mm, with 3D-bumper 80mm) Ground clearance: 5mm
Battery	Li-Ion 3.7V/800mAh accumulator, incl. charge circuit (5VDC supply voltage, mini-USB connector)
Voltages	Logic: 3.3V, Power: 3.6V, Application 3.6V (switchable for power saving applications)
Microcontroller	ARM STM32F107VC :90 DMIPS, 256KB Flash, 64KB RAM, 12Bit ADC or ARM STM32F407VE: 210 DMIPS, 512KB Flash, 192KB RAM, 12 Bit ADC incl. micro SD-card socket, USB, Ethernet RJ45
Drive	2 Gear boxed mini DC-motors (3-6VDC) incl. driver circuit and encoder disk (50 or 100 increments per rotation) incl. sliding wheel
Sensor	2 front bumper switches 1 front IR-distance switch (25mm) 2 floor step IR-sensor 2 IR line follower Optional: 8 IR-sensor for 360° distance measurement Optional: 6 bumper-switches for 360° crash detection Optional: 3D-360° cover for 360° crash detection Optional: Sonar-sensor instead of IR-sensor for distance measurement
Interfaces	dig I/Os, analog inputs, I2C, SPI, USART, Power, USB, Ethernet, JTAG, expansion ports, customer port, etc.
Software	Free software development environment (emIDE - C-compiler), including template project and basic hardware drivers

Optional

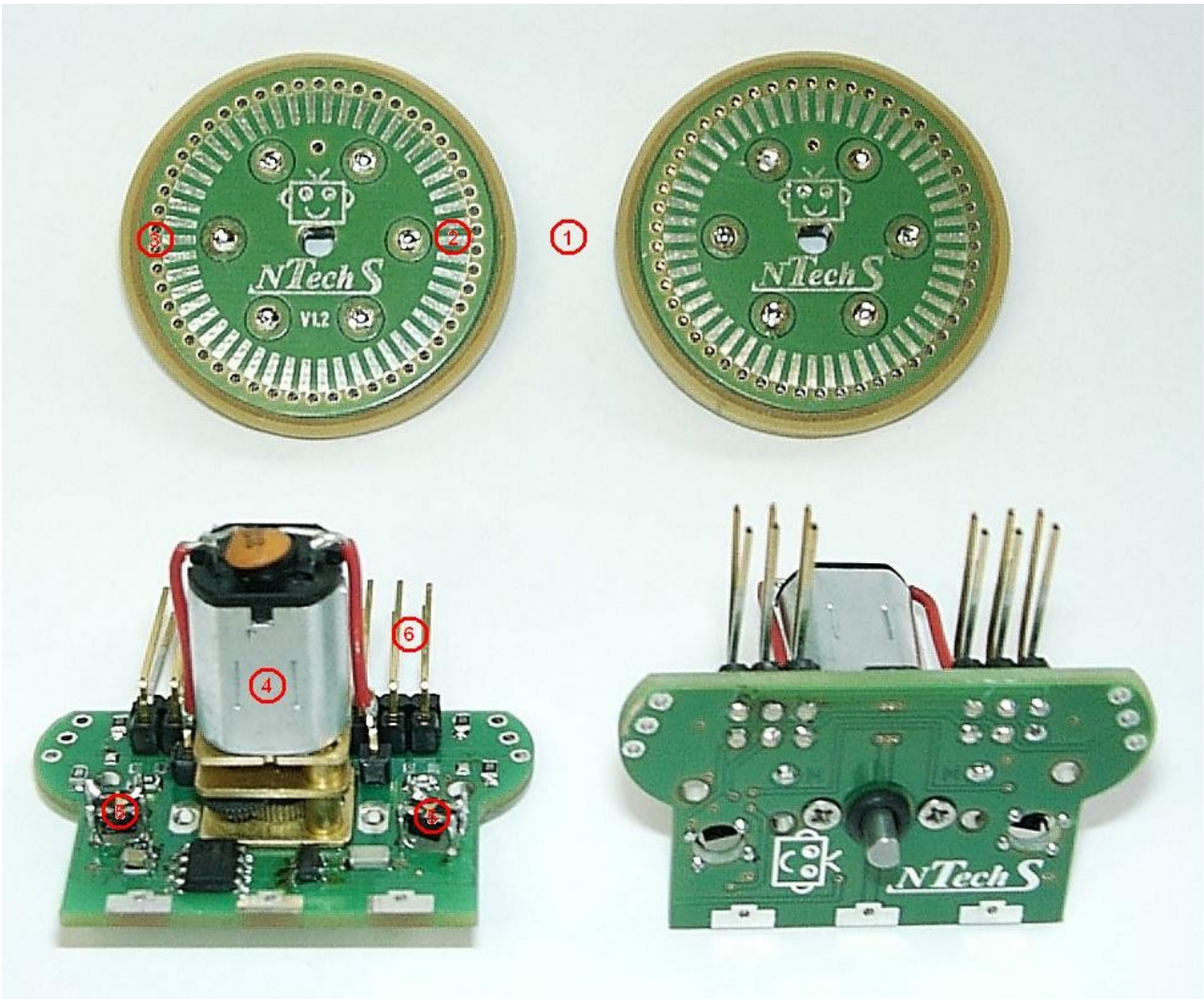
MMI	Full color TFT-display 132x132 5-way joystick and 2 extra buttons beeper
Digital Compass	provides deviation from the geographical north in degrees
Accelerometer	analog 3-way (X,Y,Z)
Balancer	No need of a third wheel (like a Segway)
Communication	Wireless NRF24L01+ compatible interface or USART bluetooth interface or WLAN
Position Detection	LPDS (Local Position Detection System) triggered by radio-signal and measured by sonar (precision +/- 5..10mm) for complete room monitoring
Charging Station	Wireless charging station, detectable via laser beam
Collective Intelligence	Artificial intelligence swarm system (ants mode software)

Bottom chassis



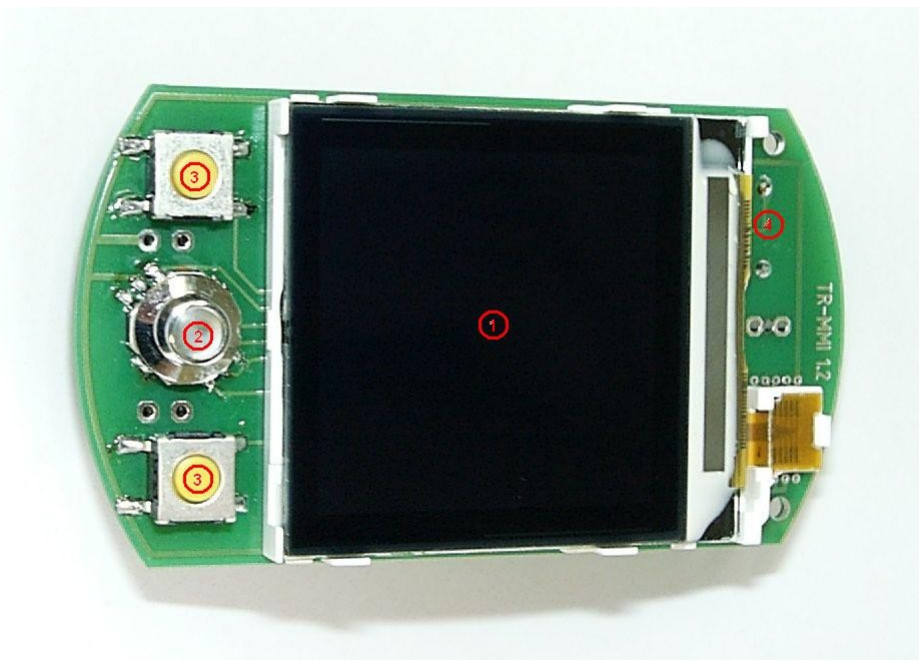
- ① Li-Ion accu
- ② Charging circuit
- ③ Power connector (mini USB)
- ④ On/Off switch
- ⑤ Power and charging LED
- ⑥ Sliding wheel
- ⑦ Bumper switch
- ⑧ IR floor step detection
- ⑨ IR line follower
- ⑩ IR distance sensor
- ⑪ Interboard connector

Driver board and wheels



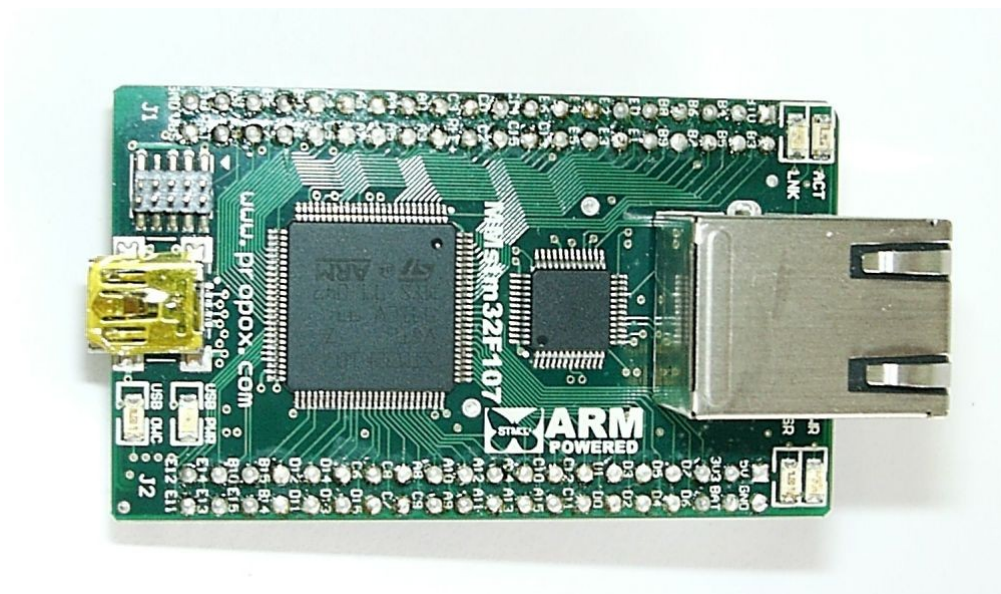
- ① Wheel
- ② Optical reflection decoder
- ③ Optical light barrier holes
- ④ Gear boxed motor
- ⑤ Photoelectric sensor (offset by 90°)
- ⑥ Interboard connector

Man-Machine-Interface

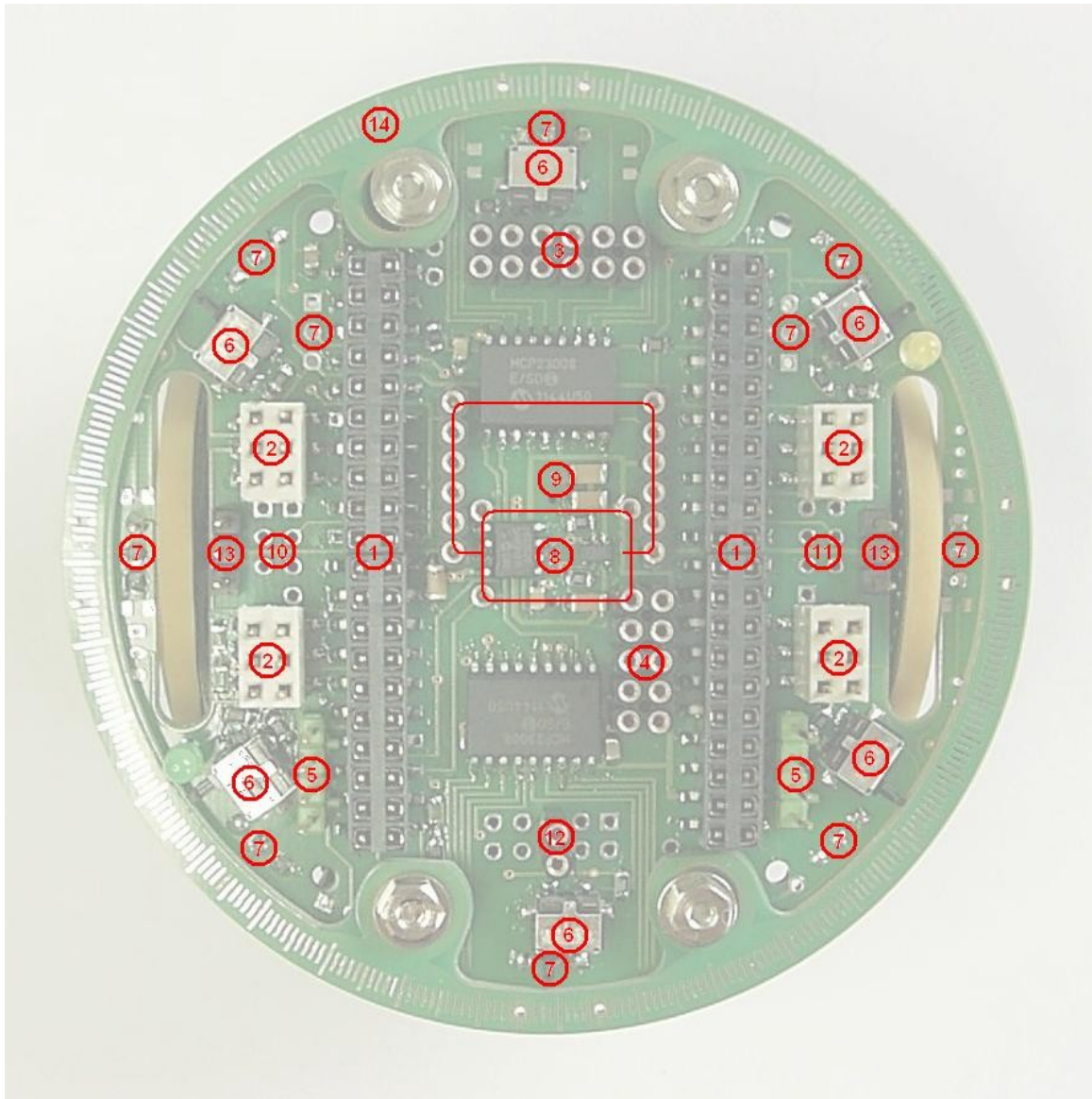


- ① TFT-Display (132x132)
- ② Joystick (5-way)
- ③ User switches
- ④ Beeper (mounted on backside)

Microcontroller modul

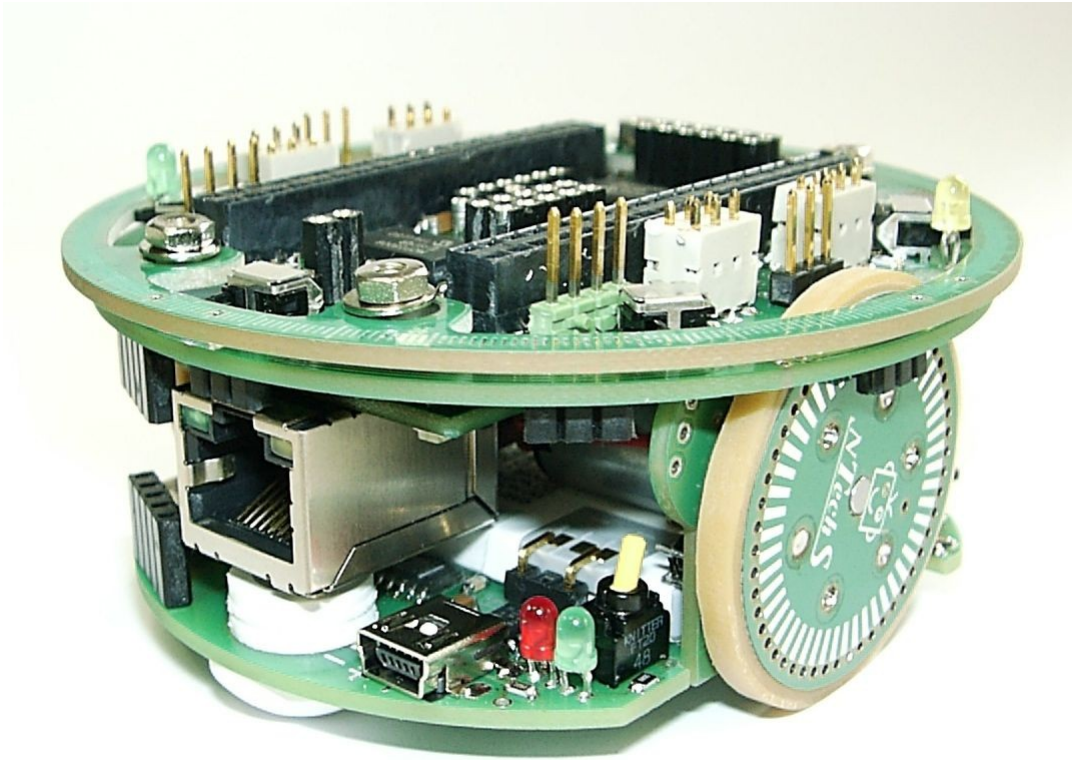
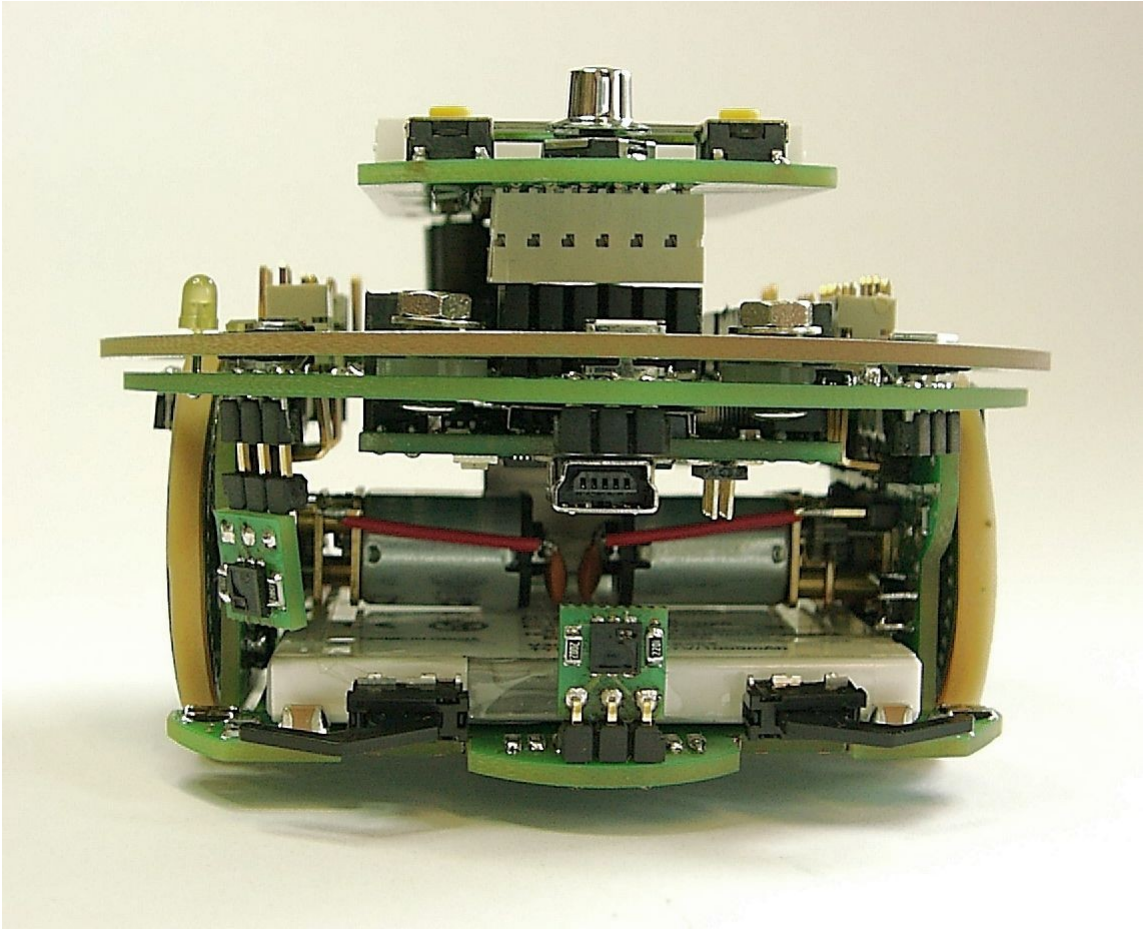


Application board



- ① Microcontroller module plug-in connector
- ② Driver board plug-in connector
- ③ Expansion port 1 (eg. MMI-interface)
- ④ Expansion port 2 (eg. Wireless NRF24L01+ module)
- ⑤ 2 x USART
- ⑥ Bumper switches
- ⑦ Sensor connectors (eg. IR-distance)
- ⑧ Digital compass connector
- ⑨ Powersupply module connector (eg. solar module)
- ⑩ Sonar module connector
- ⑪ Balancer modul connector
- ⑫ Free configuration application connector
- ⑬ Power connector
- ⑭ 360° Bumper board

Front and side view



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For more information: www.TobbyTheRobby.com