BUY NOW

Fire Bird V Tank has tank drive for enhanced mobility. It  is powered by Lithium Polymer battery. All the other features of this robot are  similar to Fire Bird V ATMEGA2560 robot. Fire Bird V will  help you get acquainted with the world of robotics and embedded systems. Thanks  to its innovative architecture and adoption of the 'Open Source Philosophy' in  its software and hardware design, you will be able to create and contribute to,  complex applications that run on this platform, helping you acquire expertise  as you spend more time with them. Fire Bird V is designed by NEX Robotics and  Embedded Real-Time Systems lab, CSE IIT Bombay.

As a Universal  Robotic Research Platform, Fire Bird V provides an excellent environment for experimentation, algorithm development and testing. Fire Bird V is evolved from  Fire Bird IV and Fire Bird II which are being used in IIT Bombay to teach  embedded systems and robotics. Its modular architecture allows you to control  it using multiple processors such as 8051, AVR, PIC and ARM7 etc. Modular  sensor pods can be mounted on the platform as dictated by intended  applications. Precision position encoders makes it possible to have accurate  position control. The platform can be upgraded to tank drive and Hexapod insect  or any other desired form very easily. It is powered by high performance  rechargeable NiMH batteries. A 2.4 GHz ZigBee module provides state of the art  secure and multi-channel wireless communication up to a range of one  kilometer.

**Research  Areas**

Artificial Intelligence
 Multi-Agents System
 Control systems
 Autonomous navigation
 Mobile sensor network
 Collaborative robotics
 Real-Time systems

Automotive technologies

## Unique  Features

   - Ideal for doing research in the areas of robotics, embedded systems, artificial intelligence and sensor networks etc.
   - Enhanced mobility because of Tank drive locomotion
   - Modular Design: Unique layered design gives versatility in design
   - Hands-on learning platform
   - Covers wide range of subjects like Microcontrollers, Embedded Systems, Mechatronics, Sensor Networks, Image processing.
   - Detailed tutorials help in interactive learning.
   - Ideal for doing research in the areas of robotics, embedded systems, artificial intelligence, sensor networks etc.
   - Supports Microsoft Robotics Developer Studio (MRDS)
   - Modular Design: Unique layered design gives versatility in design
   - Powered by rechargeable 9.6V 2100mAh NiMh battery pack with smart battery charger
   - High performance white line sensors with the illumination modulation facility for improved performance in line grid based navigation with improved power conservation
   - Up to five IR range sensors covering front half of the robot with range up to 150cm for intelligent navigation
   - Eight analog IR proximity sensors for close proximity detection up to distance of 20cm
   - Eight directional light intensity sensors
   - Supports three DC motors with position encoders
   - Battery voltage monitoring and audible battery low warning for battery protection
   - Battery current monitoring
   - Closed loop motion control using position encoders
   - 16x2 character LCD for displaying sensor data or any other information
   - Easy to interface with PC using wired and wireless communication
   - Supports 2.4GHz Wireless ZigBee for communication  with multiple robots or with PC
   - Extensive hardware and software documentation and many application notes and example C programs in AVR studio.
   - Available in Hexapod, Omni directional robot, tank drive, Insect and 4 Wheel drive with gripper configuration
   - Supports servo motor based wireless camera with pan and tilt motion, IP camera and sensor pods.
   - Easy hardware integration for add on sensors like GPS, Magnetometers, accelerometers and gyroscope etc.

 **Note: This product will be shipped with in 20 days after the  order  confirmation**

**Download Fire Bird V Flyer**
 **List of international and national publications on the  Fire Bird platforms**

**Current deployment**
**Videos of the Robots**

**Specifications**

**Microcontroller**
Atmel ATMEGA2560 as Master microcontroller
Atmel ATMEGA8 as Slave microcontroller

**Sensors**
Three white line  sensors (extendable to 7)
Five Sharp GP2D12  IR range sensor (80cm) (One in default configuration) (Also supports GP2D120  (30cm) and GP2Y0A02 (150cm)
Eight analog IR  proximity sensors (20cm)
Eight analog  directional light intensity sensors
Two position  encoders (extendable to four)
Battery voltage sensing
Current Sensing  (Optional)
Servo mounted  sensor pod (optional)
Wireless colour camera (optional)
Ultrasound scanner (optional)
Gyroscope and Accelerometer (optional)
Magnetometer (optional)
GPS receiver (optional)

**Indicators**
2 x 16 Characters  LCD
Indicator LEDs
Buzzer

**Control**
Autonomous  Control
PC as "Master"  and Robot as "Slave" in wired or wireless mode
Distributed  (multi robot) communication

## Communication
Wireless ZigBee  Communication (2.4GHZ) (Optional)
USB Communication
Wired RS232  (serial) communication
Simplex infrared  communication (From infrared remote to robot)

## Dimensions
Length: 25.5cm
Width: 24.5cm
Height: 10.6cm
Weight: 1800gms

## Power
11.1V, 500mAh 20C  Lithium Polymer battery pack with smart battery charger NR-BLIC-03

## Battery Life
45 minutes when motors are operational 65% of the time

## Locomotion
Two DC geared motors in differential drive configuration

- Top Speed: 20 cm / second
- Tank trade width: 38mm
- Tank trade height: 54mm
- Number of links per trade: 54
- Position encoder: 30 pulses per      revolution
- Position encoder resolution: 5.6 mm

## Software Support

- AVR Studio
- GUI based      control
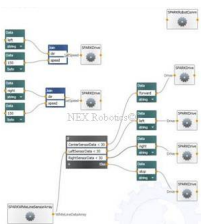- Microsoft      Robotic Developer Studio (MRDS)
- MATLAB

## Kit Contains

- Fire Bird V        Robot with all the sensors mentioned in technical specifications
- Documentation        CD
- USB        Programmer (ISP)
- Smart        Lithium Polymer battery charger with balance charging (NR-BLIC-03)
- Serial cable
- USB Cable

## Fire Bird V  ATMEGA2560 Tank Robot control GUI for controlling robot in wired and wireless  mode
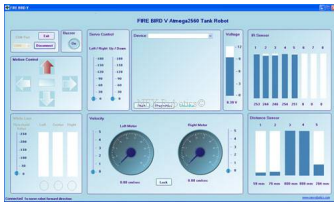


## Visual Programming Language in Microsoft Robotics Studio



## Fire  Bird V in Microsoft Robotics Developer Studio (MRDS)