

The Robots

The RidgeSoft IntelliBrain™-Bot educational robot has an open-ended and flexible design, which allows investigation of a wide variety of artificial intelligence and sensing techniques. The RoboJDE Java-enabled software development environment is an easy to use Java programming environment that allows students to focus on developing their programs. The IntelliBrain controller's LCD display, two push buttons, thumbwheel, buzzer and infrared universal remote control receiver provide a flexible user interface. The IntelliBrain controller's large number of sensor ports support study of a wide assortment of sensing technologies such as touch sensors, infrared sensors and ultrasonic sensors to more complex applications such as robotic arms and vision sensors.

For more information about these robots, visit the RidgeSoft web site: www.RidgeSoft.com.



Enrollment is limited.

Registration fee is:

1. \$250 for package 1 and includes all instructional materials, lodging, meals and recreation resources
or
2. \$150 for package 2 and includes all instructional materials and recreation resources.

To register, detach and complete the registration form. Make your check payable to "WSU Robotics Workshop." Send the completed registration form and the appropriate registration fee to:

Mary Lange
Department of Computer Science
Winona State University
P.O. Box 5838, 103 Watkins Hall
Winona, MN 55987

If you have questions relating to the workshop, contact:

Gary Bunce
507.457.5377
gbunce@winona.edu

OR

Mary Lange
507.457.5385
mlange@winona.edu

This brochure with additional registration forms can be found at the workshop website:
<http://cs.winona.edu/RoboticsWorkshop>

Cancellation Policy: Refunds will be made to those registrants who must cancel, less a \$50 administrative processing fee if a written cancellation request is received by June 15, 2009. No refunds will be made after that date. *Winona State University reserves the right to cancel the program due to insufficient enrollment and limits its liability to registration refunds only.*



This workshop is supported by a grant from the Winona Community Foundation

2009 Robotics Workshop

Winona State University

For High School Students

July 7-8-9-10

Department of Computer Science
Watkins Hall 103
Winona, MN 55987
<http://cs.winona.edu/RoboticsWorkshop>
Tel: 507.457.5385

Robotics is an exciting way to bring life to abstract programming concepts. Programming a robot allows you to immediately see tangible results from your efforts. It engages you in the learning process as you see your programs come to life in the actions of a robot.

The Workshop

The WSU Robotics Workshop is a 4-day program which provides students an opportunity to work with the RidgeSoft IntelliBrain™-Bot educational robot. The workshop starts by reviewing basic programming concepts, then progresses through a series of hands-on projects applying these concepts while exploring applications using a variety of sensors and accessories. The focus is on algorithms and programs that make the robot perform tasks. The robots will be completely assembled, however, the students will connect and test the appropriate sensors. No electronics background is necessary.



Topics include, but are not limited to:

- Review of Java
- Introduction to the robot software development environment
- The IntelliBrain (the robot controller) and Java programmer's interface
- Programming the robot for motion
- Remote control, driving through a maze
- Avoiding obstacles, Infrared Range Sensors
- Parallax Ping))) Ultrasonic Range Sensors
- Detecting and following a line
- Robot grippers
- Synthesizing speech, sound
- Discussion of algorithms for robot navigation, shaft encoding, and dead reckoning
- As time permits, other topics such as Digital Camera, Tank Treads, Crawlers

Each algorithm and programming session will consist of a discussion followed by hands-on activities.

For more information,

e-mail Gary Bunce at: gbunce@winona.edu or call 507.457. 5377

You can also visit the workshop website: <http://cs.winona.edu/RoboticsWorkshop>

Registration information

Participants will have two options when registering for the workshop.

Package 1:

This package includes:

1. Tuition
2. Lodging in a WSU dormitory for three nights
3. Meals in the WSU cafeteria, two on the first day and three on the remaining days
4. All instructional materials
5. Recreation resources

The registration fee for this package is \$250.

Package 2:

Local students who have their own transportation and are within easy driving distance to Winona may wish to register with tuition only. These students will be responsible for their own lodging and meals, but may eat at the cafeteria with the other participants on a pay-as-you-go basis. This package includes:

1. Tuition
2. All instructional materials
3. Recreation resources

The registration fee for this package is \$150

A map showing the location of the WSU buildings will be sent to all registered students. For those staying at the WSU dormitory, check-in time on July 7 is 8:30 am - 9:20 am at the specified dorm. The workshop will be held in Pasteur Hall from 8:30 am to 5:00 pm for all four days of the workshop. This time includes an hour for lunch. After the evening meal, students may return to the workshop lab to continue working on robotics projects or they may take part in other recreational activities on campus.

See reverse side for registration instructions

Student Background

The workshop is intended for students who have had some prior programming experience and have a basic understanding of overall program structure, conditionals, for loops, and while loops. The robots used are Java programmable robots. Students who have had an introductory course in Java or C++ should be well suited for the workshop. Students who have experience with another language, such as BASIC, are normally able to adapt to using Java if they understand the programming concepts mentioned above. If you have any questions regarding this, please e-mail Gary Bunce at: gbunce@winona.edu or call 507.457. 5377.



Robotics Workshop Registration Form

Name: _____ Address: _____
City: _____ State: _____ Zip: Code: _____ Male Female
Home Phone: _____ Cell Phone: _____ E-Mail: _____
School Name: _____ Grade Level Spring 2008: _____

Package you are registering for:
 Package 1 or **Package 2**

Please indicate the programming language with which you are most familiar.

Java C++ BASIC
 Other: _____

PARENT/GUARDIAN

I give my permission for my child to be treated by the appropriate medical personnel for any illness/accident while attending the workshop
I can be reached at: Day: (____) _____ Evening: (____) _____

Cell: (____) _____ E-mail Address _____

Please indicate any special medical problems (medicine, injury, allergies) of which we should be aware.