

July 12, 1999

Dear Parents and Family:

After several weeks of robot construction, students involved in the Albuquerque Academy Exploration in Robotics summer course are taking pleasure from seeing their robots move and perform programmed tasks. The students are finding that their hard work and attention to detail when constructing the robots have paid off, as the robots became functional with only minor troubleshooting. Subsystems of each robot such as the fan, white line sensor, wall distance sensors, and tone decoder have all been verified functional by the students through test programs, so the final (and arguably the most exciting) step of the robotics project is to integrate these subsystems through programming to achieve the various fire-fighting objectives.

Through this summer course students have been introduced to both the theoretical and practical sides of digital and analog electronics, microcontrollers, and computer programming. The theory side included the physics behind voltage, current and resistance in electronics; binary numbers, hexadecimal numbers, and Boolean algebra used in digital electronics; and the internal workings of a microcontroller as well as how to program it in the 'C' language. Soldering, connector crimping, heat shrinking, and wiring made up the bulk of the practical skills learned.

Thirty energetic students ranging in age from eleven to fifteen enrolled in the course. They were broken down into groups of three to five to build and program each robot. Working in groups with the various ages made the course not only a technical one, but also one in which group and interpersonal skills were developed.

The final product of the course is a small general purpose mobile robot capable of navigating a maze (representing a one-story house), finding a candle (representing a fire in the house), and extinguishing the candle. All subsystems of the robots are functional and it is up to our newly formed group of 'C' programmers (your daughters and sons) to program the robot to successfully perform the fire-fighting task.

The class web page is located at <http://www.ee.nmt.edu/~jano/robotics/main.html> for your reference. Parts lists and more information are on the way.

It was our pleasure to teach this group of students and we hope that the robotics project has excited them about technology and further pursuits in the areas of math and science.

Sincerely,

Dr. Stephen Bruder

Chris Langley

Robert Niemand

John Sinnott

Dr. Kevin Wedeward