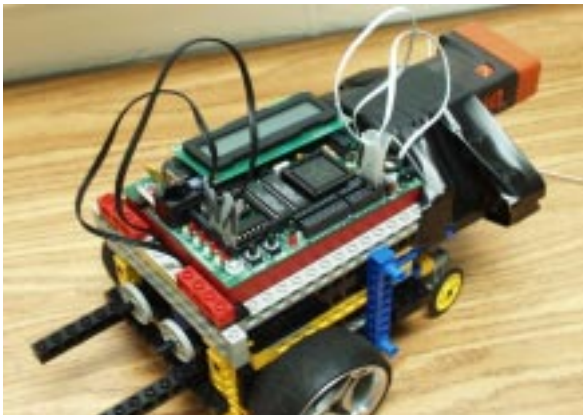


# Tom & Jerri

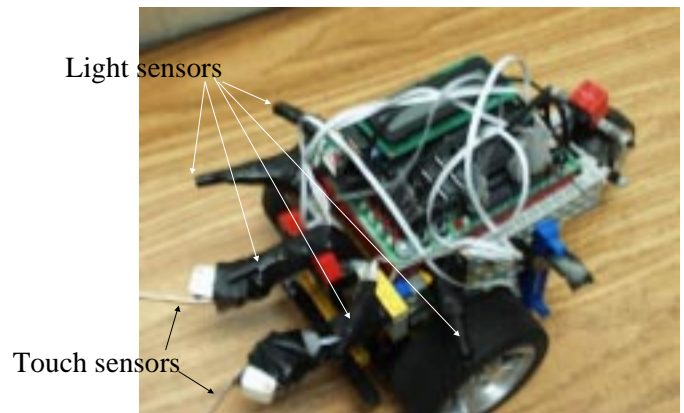
## Tracking Optical Mechanism & Juvenile Electronic Roving Robotic Intelligence

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JERRI randomly travels where he pleases, with a beam of light shining out behind him.



TOM uses his five sensors to track and chase Jerri



The Final System (in Disguise)



# Fully Autonomous Robots

Fully autonomous robots like Tom & Jerri are programmed to have intelligence. We wrote ours in Interactive C (IC) which is a subset of the C language.

```

/* Tom & Jerri - Code for Tom
The motors should be plugged into the following ports
left motor in port 2
right motor in port 3
The touch sensors on the front should be plugged into
digital ports 13 and 15
The light sensors on the front should be plugged into
the following analog ports:
mid left - 6
far left - 1
middle - 4
mid right - 2
far right - 0
*/

void motor_straight()
{
  motor(2,100);
  motor(3,100);
}

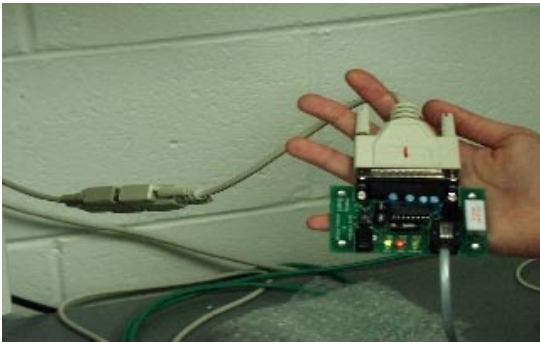
void turn_left()
{
  motor(2,10);
  motor(3,100);
}

void turn_right()
{
  motor(2,100);
  motor(3,10);
}

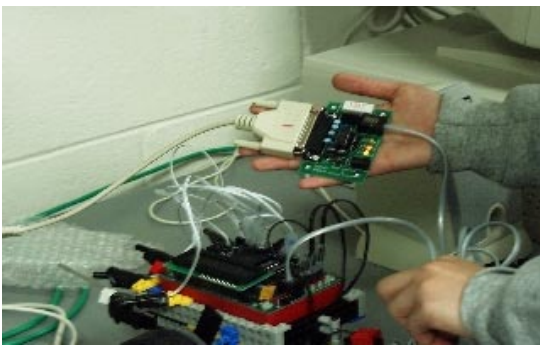
void main()
{
  int an1, an2, an3, an4, an5, last_dir = 1;
  while ((digital(15) && !digital(13)))
  {
    beep();
    an1 = analog(6); /* mid left */
    an2 = analog(4); /* middle */
    an3 = analog(0); /* mid right */
    an4 = analog(0); /* far right */
    an5 = analog(1); /* far left */
    if (an1 < 235)
    {
      turn_left(); /* mid left sensor sees light */
      last_dir = 0;
    }
    else
    {
      if (an2 < 235) /* middle sensor sees light */
      {
        motor_straight();
        last_dir = 1;
      }
      else
      {
        if (an3 < 235) /* mid right sensor sees light */
        {
          turn_right();
          last_dir = 2;
        }
        else
        {
          if (an4 < 160) /* far right sensor sees light */
          {
            turn_right();
            last_dir = 2;
          }
          else
          {
            if (an5 < 160) /* far left sensor sees light */
            {
              turn_left();
              last_dir = 0;
            }
            else
            {
              if (last_dir == 0) turn_left();
              else if (last_dir == 2) turn_right();
              else if (last_dir == 1) printf("LOST???\n");
            }
          }
        }
      }
    }
    printf("Yum!!! Yum!!!\n");
    ao(); /* turn motors off */
  }
}

```

## Serial Interface Board

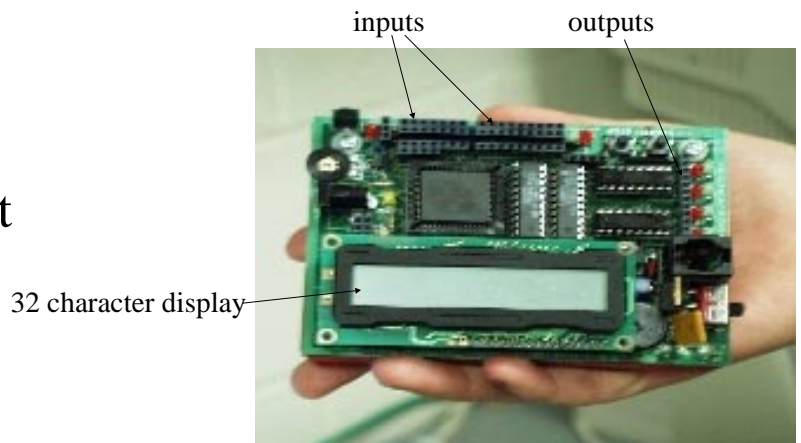


## Connected to Handy Board



Interactive C programs are written on a PC and then downloaded to the robot using a *Serial Interface Board*. It connects to the serial port of the computer to the Handy Board, which is the brains of the robot. It is capable of accepting both digital and analog input signals.

Tom and Jerri are able to make decisions based on input read from sensors. These sensors are plugged into the Handy Board.



Handy Board