## Project ideas

- Basketball Scorekeeper

A sensor will detect if the basketball went through the basketball hoop, and will send a signal to the microprocessor to add the score. Then the microprocessor will send a signal to adjust to LEDs to indicate the score of the game.

- Marketing Spy

The infrared sensor, microprocessor, counter will be used. The counter will add one if the sensor will detect that the item (iPhone, camera ...) picked up by customer. This application can be used to determine the hottest product in store. For more fun or future development, some configuration can be added to determine the shortest or longest time the customer hold the item on hand.

- Karnaugh Map Calculator

3 or 4 switches represent variables (A, B, C, D), user would input each variable by turning the switches on (1) and off (0). The program describing Karnaugh map would be implemented in the microcontroller, and the output, the minimized Boolean expression, would be displayed on an LCD.

- Line Follower Robot

The idea is building a robot which follows a black line on the white background; two front infrared sensors capture the reflected light from the white background, the PID controller can be either implemented in the microcontroller or built using three opamp circuits, the actuators would be two DC motors which run right and left wheels. (Inspired by: http://www.robotroom.com/Line-Following-Robots.html)