PROJECT SPRING 2012

This is a game for two players: Player RED and Player GREEN. The objective is to obtain the highest score in the game with five shots each. The game works as follows:

There is a counter in perpetual change (decrementing). When the player pushes the button (one shot), the counter stops. If the number in the counter is odd, one point is added to the score. If it is even, but not multiple of 4 or 8, two points are added. If it is multiple of 4, but not of 8, 3 points are added. If it is multiple of 8, four points are added. After the points are added, the counter continues from where it stopped. After five shots, it is the turn of the other player.

After the second player ends, the kit announces the winner. Then the microcontroller is put to sleep in mode 4. Another game will start by pushing the RESET button.

Your assignment is the following:

1. Plan carefully, in a modular way (use subroutines!) how the kit will tell the players when to start, whose turn it is, how many points have been added to the score, and who won. You have to document your plan.
2. Announce the score of the winner, in the simplest possible way. Use one led for tens and one for units.
3. Show a general flowchart where the "titles" of the subroutines are shown, and a flowchart for each subroutine.
4. The documentation must include information of the counters, memory locations and so on. Comments must be included in statements, so the reader can compare the flowcharts with the code.