Example we are creating an interactive counting toy similar to an abacus.

1. Report 2 Page
    1. Who is it for?
        1. Age, Demographics. Give 3 possible examples.
            1. 6-8 year old, urban
            2. 6-8 year old, farming community
            3. 6-8 year old, Alaska
    2. What is it for?
        1. Teaching, Tool, Entertainment
            1. In my example I am creating a teaching toy to teach kids how to count. The idea is similar to an abacus, but as you move the beads to count it updates an LCD display with your current count.
    3. When will it be used?
        1. Time, Place, Location
            1. Explain how Time, Place, Location, etc affect how your project is being used?
                1. In an urban setting, I would make a larger version of my counting toy and place it in a park. It is meant to be used in a community setting.
                2. In a farm setting, it would be more of a simple handheld device, the size of a 7in tablet. It will be mainly used indoors.
                3. In Alaska, the device would be larger like a 12in tablet. The device is meant to be used indoors, but the Alaskan

version is larger to accommodate for kids having gloves on since its sooo cold.

2. Explain how specifically your project is affect by Time, Place, etc
    1. Materials Used, Sensors. Make a list.
        1. Material and Sensor list
            1. Material
                1. Plastics
                    1. Ball pit type plastic
                    2.
            2. Sensor
                1. Hall-effect sensor
                2. Small button
                3. Medium button
                4.
        2. In the urban setting
            1. Materials
                1. Heavy duty plastic, like ball pit balls
                2. Metal rods of the beads to slide on
                3. Metal frame that will encase everything
            2. Electronics: Sensors and Components
                1. Outdoor rated Electronics and Sensors
                    1. I am going to use a series of switches to read when a bead needs to be counted. I

am going to be using hall-effect sensors, because they can be hidden between the bead and the receiver to make sure that kids can affect the sensor.

2. A large led panel will display the numbers

3. In the farm setting
    1. Materials
        1. Light grade plastic for the beads and the frame to hold the electronics
        2. Metal rods for the beads to slide on
    2. Electronics
        1. Small mechanical switches will register when a bead needs to be counted.
        2. 2 Small Buttons will be used to change counting modes
        3. Multiline LCD panel to display numbers and menu
4. In the Alaskan setting
    1. Materials
        1. Heavier duty plastic and weather sealing just in case it falls in the snow.

2. Metals rods to holds the beads
3. The beads will have a rubberized coating to make it easier to use with gloves

2. Sensors
    1. Small mechanical switches will register when the beads need to be counted
    2. 2 Medium size buttons to change counting modes
    3. Multiline LCD panel to display numbers and menus

4. Why does this need to exist?
    1. Based on What is it for? and Who is it for? Think about each demographic and if your project can be exist differently for each demographic. Explain for each demographic, Why you are making this project? Include goals you want to achieve.
        1. Make it easier to teach kids how to count and visualize adding, subtract, and multiply. By adding a digital display you can make the device interactive and have the opportunity to come up with new challenges.
            1. In an urban setting, it promotes kids working together and figuring out how to solve problems together
            2. For kids in farm and Alaska, The device is meant to challenge kids individually.

5. How Does it work? Include a Diagram
    1. Find similar projects or products that help illustrate features and design
        1. http://www.abacus.ca/images/hand-held-digital-abacus.jpg
    2. As the buttons hit the switches they add to the counter on the LCD