Monitor Mount System

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Design Problem

A touch monitor and mounting system was needed for a family with quintuplets. The children are 22 months old and have a variety of abilities and disabilities. As young children, they are fascinated with the computer but do not understand how to make it work. Due to the children's young age and disabilities the computer the children will use must be accessible through a touch monitor. The computer monitor must be able to be moved up and down so that the screen is visible and accessible to each child depending on what level is most appropriate for them. One of the children uses an adapted wheelchair for positioning. Currently on the market there is nothing that would meet the family needs.

Purpose and Project Goal

The Monitor Mount System (MMS) purpose is to provide a touch interface that fosters child development, and to provide adjustability so that it can accommodate the different needs of each child.

The goal of this project was to

1. Design a touch screen mount system that is useable and accessible to the customer
2. Prototype and test the design
3. Implement and present design

Team

Each team member voluntarily signed up to participate in this process based upon a project proposal. Each member was given certain responsibilities based on their skill set. The team used a project team structure where there was no defined project leader and everyone was accountable for their own duties and success of the project.

Device Design

The team used various engineering design tools such as brainstorming, objective trees, function-node diagrams, functional block diagrams, sketches, morphological charts, and pair-wise comparison tables to come up with the final design. The final design showcased a rolling cart that houses a CPU. Attached to the cart is a monitor arm that provides multi-axis positioning of a 19" LCD flat panel touch screen monitor. The cart is designed to be maneuvered into many different positions so that it can be used by all of the children. The MMS was completely custom built to meet the family's needs and wants.

Results

The MMS has had immediate results since being setup in the family home; all the children can easily touch the screen to control the learning programs. The family has noted that one child has already started to develop new skills since using the programs on the computer. Hopefully over time all the children will show the same increased development.