

Unique Qualities of Daisy II

Daisy II unique quality is the fact that she uses an FPGA for a controller. The field programmable gate array is a logic device that has numerous qualities. The FPGA uses MaxPlus II as a programming device. This combination when used properly can be useful. MaxPlus II allows the user to program the FPGA in VHDL. Another useful tool is the ability to create components and simulate them. This was very useful when writing my motor driver routines. Using this board had its high points and its drawbacks. Since it is entirely logical the input sensors had to provide digital signals. This required an additional hardware board which proved to be the most difficult aspect of the robot. MaxPlus II made writing the code very simple and straight forward. The advantage of using this board is the ability to control all signals at all times. It has plenty of assignable I/O pins so the control lines were very simple. The ability to simulate and functionality and timing for the code were essential. All the additional components were either free samples or purchased at Radio Shack. The special sensor incorporates a beam splitter which was purchased through Edmund Scientific. The Altera development board (FPGA) was acquired through the class EEL4712. This class also taught me how to program the robot. I suggest for anyone trying to use this controller to prepare themselves for external hardware development. The biggest suggestions I can give to someone after completing this robot is to make sure all components share a common ground.