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Idea 1: Scissor Lift ladder "X-Ladder"

Description:

Ever been in an area too constrictive to fit a scissor lift and also be too lazy to climb a ladder? Well, the X-Ladder combines the convenience of the scissor lift with the mobility of a ladder for the ultimate elevation tool! Simply place the compacted X-Ladder at the base of where you would like to elevate to, press and hold the expansion button until the ladder is to the appropriate height, then let the ladder lift you to where you want to be. Worried that this product will move due to an outside force touching the buttons when you're on it? Worry not as the buttons will not work unless the temperature sensor in the ladders safety handle detects the heat of the hand gripping it.

Sensor(s): Temperature sensor

Controller(s): Proportional controller

Actuator(s): Linear actuator

Idea 2: Programmable Toy Car

Description: The Programmable Toy Car has many features for the hobbyist programmer to code the car to function however desired. The car comes with IR sensors to detect objects within 12 inches, 2 input buttons, motors and wheels for mobility, and numerous indicator LEDs, and can be programmed in any complex way up to the creativity of the programmer.

Sensor(s): On/Off switch, IR sensors, Momentary Buttons

Controller(s): Atmega328p

Actuator(s): RGB LED, red LED, Motor Drivers

Idea 3: Automatic Fish Feeder

Description: We all love our pets and want to take care of them as best as we can. Sometimes life gets busy and we might forget to do some of the repetitive tasks needed to care for our pets like a simple feeding. An automatic fish feeder could be attached to the edge of almost any fish tank and be programmed to automatically dispense a specific amount of fish food at repeating intervals. The remaining time until the next feeding and amount of food to dispense would be shown on a small display. Two buttons would be present to control both the interval time and amount of food to be dispensed.

Sensor(s): Push button switches

Controller(s): Arduino

Actuator(s): Servo motor, OLED display

Final decision:

Given the deadline of this project and complexity of our ideas, we chose to proceed with the Automatic Fish Feeder project. It meets all the project requirements and is feasible.