

Nathan Frantz

*On the Road: From Dual Disability to Independence*

In today's society, there is no current safe way for someone who is deaf and blind to cross a street at a traffic intersection without the aid of someone else. This represents a significant limitation for the population of individuals who share this dual disability. Limited mobility and independence decreases the individual's opportunity to interface with society in a relatively normal fashion. Currently there are only three ways for an individual who is deaf/blind to cross a street unaided, and none of them are extremely safe. This project is aimed at designing and building a way for an individual who is deaf and blind to cross a street unaided. The device that this project aimed to build involved a microcontroller, a vibration motor, and two 120 vac to 5 vdc converters. Two protocols of this project were attempted. Protocol 1 is a device that stayed strictly attached to the light pole system. This device activates the vibration motor on different intervals depending on which walk light is on. Protocol 2 incorporates a radio frequency transmitter and splits the pole device into two separate pieces. This protocol is still in production, and is close to completion. After attempts at building and rebuilding the device, Protocol 1 most fully met the engineering goals, successfully addressing all the design criteria. Though costing somewhat more, its simplicity allows flexibility in implementing Protocol 2. When Protocol 2 is completed, it will surpass Protocol 1 in economic feasibility and will build upon the successful elements of Protocol 1.