

Specifications
Accessible Infusion Pump Interface

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I. Introduction

Home infusion pumps are vital to the health and independence of many patients. The pumps are used to deliver materials into the body fluids of the patients. Infusion pumps can be difficult to operate correctly for patients with physical limitations. Impairments such as vision problems or reduced motor function increase the risk of patient error in device operation. Creating an accessible interface will facilitate independent home use of a pump by patients whose limitations previously prevented this. The interface will also act as a failsafe by calling attention to possible input errors. This will increase patient safety. For the visually disabled, clear and large visual displays as well as tactile cues and auditory confirmation of the input must be added to the interface. To facilitate use by those suffering from loss of motor function, the tactile interface must be easy to negotiate. Patients in need of an infusion pump may also have learning disabilities or apprehension about technology. To encourage widespread use for all patients, a simple method of operation and short learning curve should be implemented. This would allow a patient to become more independent, especially if there are warnings included in the interface to limit dosing errors. Further promoting independence is a small interface that would ensure portability and patient privacy.

II. Realistic Constraints

Economically, our design is under a budget. To help patients, our end design project should be affordable. The device should be able to operate in a normal household environment. The device needs to operate without routine maintenance in order to be an effective home utility. As the device will be attached to patients' bodies, precautions must be taken to ensure that the risk of electrical shock is minimized. The maintain manufacturability, commercial off the shelf product use should be maximized.

III. Technical Specification

Electrical Parameters

Power Source 120 V A/C (Home power)

Display

Number of Characters	20 min.
Height	4" min.
Width	6" min.
Illumination	High contrast, easily visible in strong sunlight

Interfaces Must effectively operate infusion pump via interface.

Buttons	1" x 1"
Actuation pressure	Must resist inadvertent activation, but remain easy to operate
Size	12" x 8" x 6"
Weight	10 lbs max.
Durability	Operate nominally after 1' drop
Vibration	Operate nominally after 2Hz sinusoid

Environmental

Location	Home environment
Dust	10 PPM nominal operation
Operating Temp	32 F to 105 F
Storage Temp	0 F to 115 F

Software

Machine Dependent	Must interface with infusion pump to control pump operation
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