

AXIOM Remote



Ashok Singh
Priya Pandya
Swaraj Hota

AXIOM Remote

Introduction

General Concepts

Operation

Hardware

Electronics

GUI

AXIOM Remote

- ▶ A remote control with buttons, dials and an LCD for menu/settings
- ▶ Hardware prototype based on a PIC32 CPU and 320x240 pixel LCD
- ▶ The software runs “bare metal”
- ▶ There is no graphics acceleration

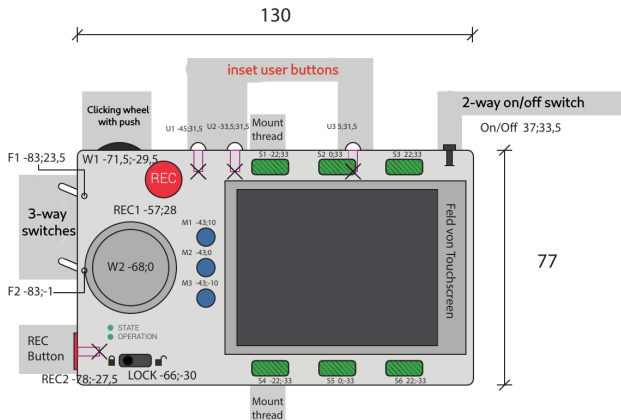


Figure: AXIOM Remote Button Positions



Figure: AXIOM Remote

- ▶ Six buttons - to select the options
- ▶ Currently in the new design - only "home" and "back" buttons are present
- ▶ In the older version - there are left/right buttons to change the pages, a page number button to goto a particular page and for the menu items which are not self-explanatory there is a "?" (help) button

- ▶ PCB Version 2 Prototype
 - ▶ The second knob is removed
 - ▶ Remove left side rocker switches
 - ▶ Remove top side pushbuttons
 - ▶ Having one white LED per pushbutton
 - ▶ 4 more holes to PCB
 - ▶ Replace slide switches for ON/OFF and LOCK with pushbuttons



- ▶ PIC32MZ was chosen as core processor, two PIC16 are used for handling push button, rotary encoder and LED IO
- ▶ 2.8" 320x240 TFT from Adafruit as a display
- ▶ USB-C Connector
- ▶ Currently powered externally via 5V DC supply
- ▶ The firmware is programmed with a PICkit2 directly into the flash memory

AXIOM Remote UI design chart

State	Button (top/bottom)	Menu item	Colors
Active	<div> <div>Caption</div> <div>Value</div> </div>	<div> <div>Name</div> <div>Value</div> </div>	<div> <div>Text / RGB 0 0 0</div> <div>Background / RGB 255 255 255</div> </div>
Disabled	<div> <div>Caption</div> <div>Value</div> </div>	<div> <div>Name</div> <div>Value</div> </div>	<div> <div>Light</div> <div>Text / RGB 40 40 40</div> <div>Background / RGB 180 180 180</div> </div>
Highlighted	<div> <div>Caption</div> <div>Value</div> </div>	<div> <div>Name</div> <div>Value</div> </div>	<div> <div>Dark</div> <div>Text / RGB 80 80 80</div> <div>Background / RGB 40 40 40</div> </div>
Pressed	<div> <div>Caption</div> <div>Value</div> </div>	<div> <div>Name</div> <div>Value</div> </div>	<div> <div>Text / RGB 255 255 255</div> <div>Background / RGB 0 128 128</div> </div>

Figure: Color Scheme