

tap
it

All the information you want is only a tap away

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Project Concept

- A device that allows users to monitor information of their choice (weather, stocks, sports, etc.) at a glance.
- This device will use accelerometer data to detect sharp taps to the left/right sides of the frame in order to manually cycle between multiple information sources which will be obtained from an internet connection via 802.11b/g or Bluetooth.



Project Motivation

- Most modern technology (cell phone, computer, etc.) requires a user's interaction and full attention in order to convey information.
- Once initially customized by the user, this prototype will automatically cycle between information streams with the option of manually switching streams by tapping the sides of the device.

Competitive Analysis

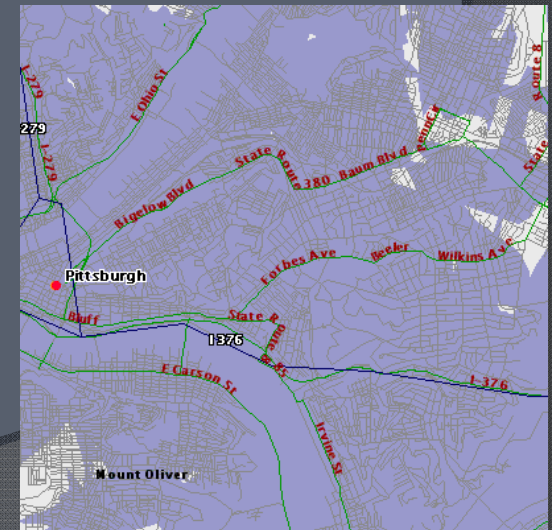
○ Ambient Devices

- Based on a pager network
- Different devices for different streams of information
- Subscription required for customized information



○ Wireless weather monitoring station

- Single stream of information
- E.g. Oregon Scientific
 - Sensor based
 - Professional Weather Center (WMR200)
 - “Feed” based
 - WeatherNow with MSN Direct Service (WMS801)



Requirements

○ Functional

- Retrieve data from the internet via an 802.11b/g or Bluetooth network connection
- Parse and display data on LCD screen
- Identify sharp taps to the left/right sides of the frame using accelerometer data

○ Timing

- Update data every 10 min
- Retrieve data from internet in under 10 sec
- If data is available, parse and display on LCD screen in under 10 sec
Else, display error message + cached information from the last update
- Identify sharp taps and switch feeds in less than 1 sec

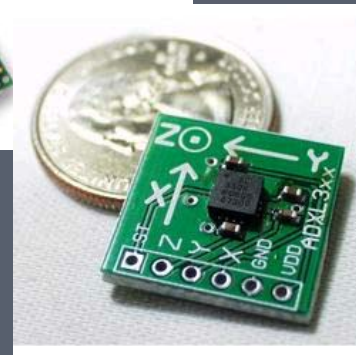
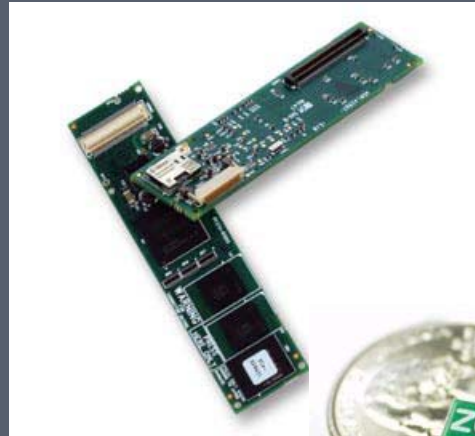
○ Reliability

- Attempt to reestablish network connection upon failure
- Simple user interface (after initial configuration) with no physical buttons
- Small movements must not cycle the data being displayed

Technical Specifications

Hardware

- gumstix
 - verdex XM4-bt
 - consoleLCD-vx
 - netwifimicroSD
- Samsung 4.3" LCD
- Accelerometer
- Cell phone with:
 - Bluetooth
 - Data plan
- Computer with:
 - Bluetooth
 - 802.11b/g



Protocols

- 802.11b/g
- Bluetooth
- RS232?
- SPI?