



TS3 TOUCH SCREEN

PRODUCT PROPOSAL

Project Index: #250

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1 Product Proposal

1.1 *Product Idea*

New Product Product Enhancement

1.1.1 Product Description


Russound products have both grown in capacity for sources and zones along with providing more system / source feedback to the end user than ever before. This has pushed our user interfaces to new heights in order to support the growing list of requirements and information presented to them. Whether they are menu items or metadata, rendering these bits of data requires bigger displays than before while navigation and control require user input that is both intuitive and concise. It is no secret that touchscreens provide solutions in the form of both larger display area real estate and the ability to dynamically render the user input options that are specific to the task at hand. The Russound TS2 and TSV are two examples currently available from Russound.




This 'product' is more specifically a shared general platform that would support various iterations that offer different size display screens.

1.1.2 Project Goals

Goals for this are to have multiple touch screen based user interface options that are profitable, use technologically stable elements that are both powerful enough to support future feature implementations and meet market demands. For Russound to maintain control over the developmental environment for the user interface in order to control the user experience which is the core element of a touchscreen user interface. To work with current and future controller platforms and support the increasing amount of data required for rendering content information both graphically and textually in an organized, efficient and aesthetically pleasing manner.


1.2 *Proposed Features and Benefits*

- 3.5" High quality, Active matrix display
 - High resolution-high contrast, and wide color spectrum support will be required to meet user expectations for visual appeal of background graphics and digital media cover art etc Wide off axis viewing angle will be required to address various user height of this as it will be at a fixed mounting position.
 - Consumer
- Gesture as Input support (Future) 
 - Vertical flick and horizontal swipe motions are highly desired methods of user input for navigation of multiple pages or lists of information
 - Consumer
- Resistive Touch
 - Less expensive form of touch sensing than capacitive touch, it is reliant upon pressure instead of a 'skin' touch making it more reliable for use cases involving long fingernails, extremely dry or gloved hands
 - Capacitive touch would provide benefits to gesture as input performance but at a cost premium

- US Standard 2-gang mounting
 - Permits retrofit into existing systems as an upgrade U.I. path without custom back box requirements or costly installation modifications
 - Installer
- EuP Compliant for energy efficiency
 - Low standby power consumption is increasingly important and is now a requirement in Europe. Domestically Energy Star is following a similar path and it is prudent that we maintain compliance with these standards in consideration of the global environment. This also adds value to the product.
 - Consumer, Russound
- Extensible to new UI design later
 - As features are added, removed, or modified will be necessary for the user interface to be redesigned to address these changes in a fast and cost effective manner
 - Consumer, Russound
- Screen editing / update capability (graphics not OS) 
 - Themes using different color schemes and graphic elements add value to the product in the ability to conform to user preferences. The ability to update the 'front end' of the UI by Russound will permit us to follow trends and market preferences
- Ethernet 
 - One of the most robust and widespread standards for communication will provide the bandwidth to support large amounts of data and traffic necessary for a rich user interface. There are benefits of using standard architecture for the installer as well
 - Consumer, Russound, Installer
- Support remote update capabilities 
 - The ability to remotely update the product eliminates the need for an installer to be present at the device for updating it. Having the controller update the touchscreen after being sent an update (either locally over RNET or remotely via IP/Ethernet) is less intrusive into the consumers home and reduces service overhead for the installer
 - Installer
- Front USB port for device update capability (no removal from wall to access)
 - Updating the product will be necessary for bug fixes and additional features or enhancements. The ability to do an update of the touchscreen firmware without removing the touchscreen from the wall will reduce the time and effort for the update along with reducing the risk of damage to the touchscreen
 - Installer
- Support for software test automation
 - The ability for automated software testing is desired for expeditious SQA test cycles thereby shortening the development schedule and reduction of human resource demands
 - Russound
- Support for manufacturing test automation
 - The ability for automated manufacturing testing will shorten the QA cycle and reduce the demands on human resources resulting in faster production, elimination of human error and cost reduction
 - Russound
- Open Embedded Linux distribution

- Streamlined and efficient this will open development efforts with fewer constraints
 - Russound
- RIO Protocol support
 - RIO or Russound I/O is a simplified protocol compared to the hexadecimal commands used to date. Supporting this will streamline the integration with third party products and simplify customer support
 - Installer, Russound
- Cold Boot time < 20 seconds
 - From a power cycle state the boot time can't be any greater than 20 seconds and ideally should be 10 seconds or less. While this is considerably longer than the wake from standby time frame it is understood that there is a considerable amount of communication that must occur. There is a higher acceptability to longer boot times from a power cycle state by end users so this is not as critical as the wake from standby
 - Installer, Consumer
- Wake from standby / idle < 1 second
 - When the zone is activated from a standby or idle state (power cycle has not occurred), the wake time should be no greater than one second. This will provide a quick sign of life to the end user during normal operation.
- Dynamic source configuration
 - Permits the touchscreen to automatically be configured for the source types that the controller is configured for thus eliminating the need for the installer to have to duplicate this effort within the touchscreen itself such as with the UNO-TS2
 - Installer
- Audible confirmation
 - When a user initiates a soft key press, audible confirmation combined with any visual indication will confirm the users action
 - Consumer
- IR recognition
 - Local (built in) IR receiver interprets Russound's RNET commands to be sent to the controller as event commands for streamlined operation
 - Consumer, installer
- Local IR disable/enable
 - IR receivers can pick up unwanted interference so the ability to disable the built in (local) IR receiver is critical to prevent unwanted environmental challenges. This will simplify troubleshooting and provide a more reliable product to the end user
 - Consumer, installer
- IR pass-through
 - Supports repeating sources' native IR commands through the controller to the IR emitters permitting their use
 - Consumer
- External IR receiver input
 - Permits the integration of external IR receivers to a keypad for zone control from alternate points where an IR remote is either pointed or 'seen' based on the floor plan of the room or expected / desired user behavior such as pointing a remote at a TV when watching a video source. This may also be an alternative to using the internal or Local IR if disabled

- Consumer, installer
- Brightness adjustment
 - Preferably automatically adjusts to the ambient light levels to prevent overly bright or dim backlighting on the display
 - Consumer
- Contrast adjustment
 - Permits adjustment of the contrast for user preference of 'sharpness' and detail on the display
 - Consumer
- Screen blanking adjustment
 - Adjustable timeout for screen to shut off when inactive will eliminate unnecessary hours on display components and backlighting along with energy savings
 - Consumer
- RNET connectivity
 - Permits the touchscreen to be connected to an RNET enabled controller's keypad port for compatibility with existing controller platforms supporting the ability to retrofit a system with touchscreen replacement of keypad U.I. devices. RJ45 Termination for ease of installation and cable testing
 - Installer, consumer
- Source screens for Russound sources
 - Dedicated – purpose built screens for the user to interface with the Russound made source equipment provide an enhanced user experience and streamlined operation while making it virtually 'plug and play' for installers requiring only minimal configuration
 - Consumer, installer
- Source screens for IR sources
 - Generic screens designed to support different types or classes of source types with common user input elements required for controlling the source
 - Consumer, installer
- Home screen
 - Sometimes called a 'now playing' screen is the default screen for top level menu / option selection while displaying the current zone and source information
- Audio controls (bass, treble, etc.)
 - Permits user to adjust the audio levels for listening preferences in the room
 - Consumer
- Diagnostics
 - Provides a list of options for installers to diagnose elements of the display and the touch sensitive element
 - Installer, Russound
- Hard button support
 - Not all touchscreens may have hard buttons many do and the ability to support them is critical. A touchscreen that is inactive without hard buttons requires a 'wake up' before any action can be performed creating additional steps to performing tasks.
 - Consumer

- Simulation made available
 - Having a simulation  virtual touchscreen will be a valuable tool in development. It may even be productized for end users to have a virtual UI that can control their system from another device such as a computer
 - Consumer, Russound
- Alarm /date/time/ Sleep timer support
 - Supporting the alarm features of the controllers will be necessary for the touchscreen as well as other clock dependent functions
 - Consumer

1.3 Product Attributes

1.3.1 Technology

Ethernet, RIO, RNET, Linux, Resistive (or Capacitive if used) Touch drivers, Video Drivers

1.3.2 Influences

	Yes/No	Describe the manner of influence
Quick Turn	Yes	<i>Relative to existing knowledge of Ethernet, RNET, RIO and QT U.I. development environment, embedded Linux</i>
Reuse	Yes	<i>See above</i>
Rest of World	Yes	<i>EuP, Mounting retrofitability</i>

Additional information goes here

1.3.3 Patentability



	Yes/No	Why?
Will this product use any new technologies that are patentable?	No	
Could the product concept be patentable?	No	
Could the product design be patentable?	Yes	
[Other]		

1.4 Strategic Alignment

Touchscreen products have become an increasingly popular User Interface in the CE industry as well as within the MRV market. Customers have voice their desire for multiple options from Russound and better pricing.

1.4.1 Strategic Initiative Score

Mark each Strategic Initiative that this product addresses with a value of 1 based on if it addressed the particular initiative and a 0 if it does not.

Initiative	Manner Addressed	Score
Customer Driven Solution		1
Digital Content Delivery	Cover art, meta data and other digital content data 	1
Intercom Functionality		0
Standards Based	IP, RIO,	1
Video Support	Ethernet could support CCTV 	1
Home Systems Ready	IP Opens up the opportunity for control of third party products	1
Global Market Ready	EuP compliant	1
De-Centralized		0
Retrofit Friendly	2-gang mounting	1
Green Philosophy	EuP, Eco-friendly packaging	1
Total Score	<i>Highlight value then right click and select 'Update Field'</i>	08

1.5 Product Positioning

1.5.1 Position within Russound's Product Line

Being the base platform for a new line of products this proposal doesn't directly address specific product line considerations. It would however spawn products that would replace the UNO-TS2 and potentially the TSV touchscreen products.

1.5.2 Position within Russound Sales Channels

Based on the product line proposed product offerings would be sold under would directly affect the position within our sales channels. However, it is assumed for the purposes of this proposal that there would be no change in what the current product's position is.