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Student Screen Overview

Adjust volume
Connectivity status
Heart Rate
$\text{SpO}_2$
$\text{ETCO}_2$
Invasive Blood pressure
Respiratory Rate
Temperature
Monitor Layout
Silence Alarms
Adjust parameter for alarms
Investigations suite
Set cycle NIBP Interval
NIBP
Start NIBP
Auto NIBP
Investigations
Alarms
Silence
Menu
Student Monitor and Defibrillator/Pacer Layout Overview
**Monitor Layout and Colors**

You can adjust the order in which the vital signs are displayed and the represented colors. This is useful to mimic a monitor the user is familiar with.

To change the order, click on the ‘Layout’ button on the student device, then you can hold and drag the vital signs using the symbol at the right side.

Similarly, to change the color click the colored circle beside the name of the vital sign and 9 color options will be available to choose from.
Introduction

Thanks for your interest in the TruMonitor software. TruMonitor is an adjustable patient monitoring system which can be used as a standalone device or connected with a second device to provide an ‘instructor’ and ‘student’ learning platform. TruMonitor can be used alongside mannequins or real patients to create realistic scenarios and improve training.

The system comprises interfaces (details of these screens can be seen in the above overview pages):

1. Instructor Screen Layout Overview
2. Student Monitor Layout Overview
3. Student Monitor and Defibrillator/Pacer Layout Overview
4. EMS Monitor Overview
5. High Contrast Screen Overview

Features:

- Adjustable vital signs with 30+ ECGs, capnography, etCO2 and Sp02 Trace waveforms.
- Scenario builder
- Pre-loaded scenarios
- Real-time CPR feedback
- Defibrillation and Pacing capability
- Cardiac arrest options
- Arterial line and Blood pressure cuff inflation cycle
- Investigation suite with access to Blood Gases, Haematology/ Biochemistry and radiology database
- Trend feature which allows the user to specify a parameter change over a period of time
- Access instructors camera roll to use any image stored on camera roll to enhance scenario
- Sound effect library with airway obstruction, secretions, stridor, laryngospasm etc
- ECG/Xray/CT images can be sent to student device
- Various monitor modes layout

**Installation and Set-up**

The TruMonitor software can be downloaded from the App Store on IOS devices and Google Play on Android devices.

When you have downloaded you will have 21 days free access to the full features of the TruMonitor system, if you have finished your trial and would like pricing information please get in touch via email info@trucorp.com and a member of our team would be happy to help.

If you have purchased TruMonitor you will be able to sign-in using your email address and password which has been activated for premium access. Alternatively, if you have an access code you can input it at the login screen for access. The system will remember your details so you will not need to login each time you want to use the app.

**Step 1:** Sign in or enter your access code to activate the app

![Sign-in screen](image1)

**Step 2:** Select instructor mode on one device and student mode on the other.

![Select mode screen](image2)
**Step 3:** Select the device you would like to connect with.

**Step 4:** On the instructor mode tap the vital signs down the left-hand side to begin.

**Step 5:** You can now create and load your scenarios.
Exiting the Monitor

To exit the student monitor, click the menu button at the bottom right corner, then click exit monitor.

To exit the instructor monitor, click the door with arrow icon at the top left corner.

Updating the Software

From time to time we will update the software with new and improved features, to ensure you are using the newest version of TruMonitor please visit the App Store on IOS devices and Google Play on Android devices.

Passwords
If you forget your password, you can reset by typing the email address you signed up with and clicking ‘forgot your password’ on the TruMonitor login screen.

You will be sent an email address with a link to reset your password, when you click the link you will be directed to a page to change your password.

Your Password for TruMonitor

noreply@trumonitor-56974.firebaseapp.com
bcassidy@trucorp.com

Wednesday, 18 July 2018 at 14:17
Show Details

Hello,

Thanks for signing up for TruMonitor!

Follow this link to set up your password for your account registered with email bcassidy@trucorp.com

https://trumonitor-56974.firebaseapp.com/_ah/v0/missing
node-resetPassword&Bosstable:SU-,E6-E5T_6eswA0hfei644$nAMHo$19L08t9eAAEPvYDQ& xpath=xy3s0DronxYs9E3xNhQ3MKteu2N6IJ6

Once you have set your password, please download the TruMonitor app from the iOS App Store to log in and get started.

If you didn’t ask to set up or reset your password, you can ignore this email.

Thanks,

TruMonitor team
Connectivity

The TruMonitor Instructor and Student devices connect through WIFI or Bluetooth. If you are experiencing difficulties with the Bluetooth connection please ensure the Wi-Fi is on, even if you are not connected to any networks.

The connection status of your devices can be seen on the top right corner, you can click this to reconnect or change students.

For initial set up please scroll back to the Installation and Set-up section.
Investigation Suite

TruMonitor has an extensive investigation suite which allows the instructor to access and send lab, ECG, X-Ray, CT and Ultrasound results. The user can access the investigation suite by clicking the Investigations icon on the bottom of the instructor screen.

Within the Lab tab, the Instructor can adjust the Biochemistry, Hematology and ABG. It is quick and easy: simply drag the slider button left or right and send the changes.

When sending a new set of lab results, the instructor can choose to send all results simultaneously, or to send the hematology or biochemistry results separately. Lab results can be sent directly to the student screen, or to their investigation library where they can be accessed/reviewed as required.

Below you can see the Biochemistry tab and how each of the parameters can be altered. If you wish to send results please ensure you enable the visibility on the monitor.

When the instructor sends the results over to the student it will appear on their monitor as below. The arrows beside the results will indicate if the value is lower or higher than a normal patient.
The same principle applies for all investigations. TruMonitor also allows you to access your own camera library and upload any images you have on file.

Below you can see the Custom tab, you can use this to select and upload images from your device.

When the instructor sends the image over to the student it will appear on their monitor as below.
The same actions can be applied to all the tabs on the investigation suite.

**Preparing and Activating ECG’s**

During a scenario, you may wish to prepare an ECG rhythm which you can activate as the case evolves. To do this you click the button on the bottom left corner of the Instructor screen.

This will open a library of ECG’s to choose from, when you click one the system will remind you by flashing the names of the current ECG and the next ECG to be loaded.
When you are ready to activate the chosen ECG, click the Activate ECG icon from the bottom menu, this will change the monitored ECG rhythm to the new selection.

**CPR**

When a student is performing CPR, activating the Cardiopulmonary Resuscitation (CPR) button causes an ECG artefact to be displayed in place of the monitored ECG rhythm. The rate of this artefact can be adjusted by the instructor. “Too fast” or “too slow” adjusts the rate of chest compressions above/below recommended guidelines. If the instructor wishes to accurately match the artefact rate to the performed chest compressions rate, they can tap inside the box at the same rate as the student’s chest compressions.

The instructor can also comment on the depth of chest compression (too deep or to shallow).

If good quality CPR is maintained, the TruMonitor system’s algorithms will adjust the EtCO2 and invasive BP traces accordingly. If not, the EtCO2 and invasive BP traces will fall in keeping with very poor cardiac output.

ROSC (Return of Spontaneous Circulation)
During CPR, activating ROSC will cause a sudden rise in monitored EtCO2. The CPR artefact will still be displayed until CPR is paused/stopped. The instructor will be prompted to select an ECG compatible with a cardiac output, which will be then be active when CPR is paused or stopped.

Pause CPR for rhythm check
Selecting this button pauses the CPR artefact (when the student would pause for a pulse/rhythm check). During the pause, the invasive BP and EtCO2 rapidly fall to zero, allowing the instructor to reiterate the importance of minimizing pauses to chest compressions.

Stop CPR and Activate Next ECG
At the end of a 2-minute cycle of CPR, the instructor may wish to have an ECG rhythm change. When this button is pressed, the CPR artefact will cease and the ECG rhythm “on standby” will become active, prompting the student to reassess.
**PEA**

The Pulseless Electrical Activity button allows the instructor to immediately simulate a cardiac arrest, regardless of what ECG is currently active. The SpO2 trace will be lost, and the invasive BP trace will flat line until CPR is commenced. The EtCO2 will drop to zero over several breaths, unless CPR is initiated quickly. To deactivate the PEA, simply click the button again.

**Sounds**

The sound library can be accessed from the bottom of the instructor screen and allows the user to select a sound to play on the student’s device. You can choose from airway obstruction, laryngospasm, needle decompression etc. Click the ‘stop audio’ button before closing the library to stop sounds.
The NIBP button simulates a single inflation/deflation cycle of the blood pressure cuff, when the student wishes to check the blood pressure. Auto NIBP allows the student to set the monitor to check the blood pressure at specific time intervals, without having to manually press the NIBP button to start the cuff inflation (1, 2, 3, 5 or 10 minutes).
Alarms

TruMonitor has highly customizable alarm settings. When Student Mode is selected the user is asked to confirm the age of the simulated patient. The alarm settings will instantly adjust to age appropriate high and low triggers for all the physiological parameters for that chosen age.

During the scenario, the student can manually adjust alarm settings. Tap the Alarms button and then adjust the upper and lower alarm triggers for each physiological parameter.

Individual alarms can be suspended by toggling them on/off from after tapping the Alarms button. The student will be prompted to select a time interval (i.e. how long will that specific parameter’s alarm be paused for).
**Custom Image Library**

You can upload and sort your images into categories in the custom image library. You can click the image icon on the top of the instructor screen to access this area. To upload a new image, click the ‘add new image button’ and select the image from your camera roll.

![Custom Image Library Screenshot]

**Preloaded Scenarios**

Within the app you can access a range of ready-to-use scenarios. The scenario button on the top of the instructor device allows the user to select and load a scenario.
When a scenario is selected a summary box appears, describing the various stages of the scenario. The example below demonstrates the pre-programmed steps for a tension pneumothorax in a ventilated patient.

Once the scenario is loaded, all the instructor has to do is activate the next step (by tapping the relevant step followed by “update monitor” and the parameters will change over the
specified trend time. The relevant investigations will become available at an appropriate stage of the scenario (in this case moving ultrasound GIFs of normal lung and pneumothorax).

**Settings**

The settings can be accessed by clicking the icon highlighted below. Within the settings the user can change the measurement units, deactivate the lab result interpretation, change the custom parameters and edit individual pacing capture thresholds for each ECG rhythm.
FAQ’s

What is the TruMonitor app?
TruMonitor is an adjustable patient monitoring system which can be used as a standalone device or connected with a second device to provide an ‘instructor’ and ‘student’ learning platform.

How can TruMonitor be used in my organization?
TruMonitor can be used alongside mannequins or real patients to create realistic scenarios and improve training. This helps to utilize the resources you already have and provides a cost-effective training solution.

How do I download the TruMonitor app?
You can download from the App store on iOS devices and Google Play on Android devices.

How do I purchase the TruMonitor app?
Please get in contact with us to discuss package options via phone +44 (0)28 9073 7281 or email info@trucorp.com.

How many students can the instructor control?
The app is sold as a package with two users (a student and an instructor). The instructor can control up to 8 devices one student monitor.

Can I change devices?
Yes, to change devices you will need to log out of the device you are using and login to the new one. Both devices will need to be iOS or Android, you cannot use one of each.

I am having problems with my Bluetooth connection. What is the issue?
Please check your WiFi is on, even if you are not connected to a network. Otherwise please refer to the ‘Connectivity’ section on this user manual.

How many devices can I use at one time with my account?
When you purchase premium access to TruMonitor, as standard, your account will allow you to be logged in on 2 devices simultaneously. For example, if you have two iPads, you can log in to both with your TruMonitor account, and use your premium access on both. If you log into a third iPad, you will receive a message advising you that your limit has been reached for your account. To unlock access for the third iPad, you should log out of one of the other iPads you were using previously.

What devices can I use with TruMonitor?
TruMonitor is currently available for iOS and Android, and will work on both iPhone and iPad and tablet devices. While the software will work on iPhone and android phones, we strongly recommend using iPads and tablets where possible, as the larger screen area will provide a better experience for both instructor and student. TruMonitor supports iOS
versions 9.0 and above, however it is recommended that you use the newest available software. To ensure your devices can connect to each other easily, we recommend both devices are using the same version of iOS where possible.

I am receiving the warning "Maximum Devices Reached"
As standard when you purchase premium access to TruMonitor, your account will allow you to be logged in on 2 devices simultaneously. To unlock access on a new device, you must log out of one of the previous devices. If you’re unable to log out of the previous device, e.g. if you don’t have access or you have deleted the TruMonitor app, please contact us for assistance.

Does TruMonitor work through Wi-Fi or Bluetooth?
Both. Please enable Wi-Fi and Bluetooth on your devices when using TruMonitor, as the TruMonitor will use the best available connection to control your devices.

Will I be able to connect TruMonitor devices through the existing Wi-Fi in my building, school or hospital?
Maybe - it depends on your Wi-Fi network. Some Wi-Fi networks have filtering and security limitations enabled, which can interfere with how TruMonitor devices connect with each other. This can often be the case in publicly accessible Wi-Fi available in schools or hospitals. To ensure connection, we recommend enabling Bluetooth as well as Wi-Fi. It is also possible to set up a personal hotspot or your own Wi-Fi network, and connect both devices to it, instead of using the built in Wi-Fi of your building.

I’m having difficulty connecting with another device to control it.
If you’re having difficulty connecting, follow these steps carefully:

1. On one device, open the Instructor View. On the other device, open Student View. Student view must be active to allow the instructor to connect.
2. From the Instructor view, tap the button in the top right corner of the screen “Tap here to browse devices”
3. Wait for your device to search for students. When you see the student device you wish to control, select it from the list, and press “Done”

When successfully connected, the Instructor view will indicate “1 Student Connected” in the status box, and the student monitor will change into instructor mode.

I don’t see any student devices when I search for them from the instructor mode.
1. Ensure you two have two devices, both operating with the latest version of TruMonitor. Check the App Store for available updates regularly.
2. Ensure both devices are logged in, have premium access, and are not showing “Free Mode” or “Maximum Devices” warnings
3. Ensure both devices have Bluetooth and Wi-Fi enabled
4. Ensure the student you wish to control has opened the “Student Mode” screen and there is no “Free Mode” message displayed.
Do I need to pair my devices together with Bluetooth for TruMonitor to work?
You don’t need to pair your devices with Bluetooth, just make sure Bluetooth and Wi-Fi are enabled on both devices, and TruMonitor will connect using the fastest method available.

**Instructor Mode**

Can I create my own pre-set scenarios?
Yes, you can create your own presets to save time and store your commonly used scenarios. You can create a scenario with multiple steps, or just a single step if you prefer.

To create new scenario, follow these steps:

1. Open Instructor mode
2. Using the sliders, pattern selectors and other options, set all of the parameters you want to store for the first “step” of your scenario.
3. Tap the “Save” icon in the menu
4. Tap “New Scenario”. This will create a new scenario, and save the current parameters as the first step in the new scenario.
5. Enter a name for this scenario in the pop-up that appears
6. Notice that “Step 1” has been created. Tap to view its details, and edit its description.
7. To add more steps, exit the saved scenario menu, and set up your next step as before. Tap the “Save” icon again, select the scenario you created before, and tap “New Step”. Now your scenario has multiple steps which can be used later.

To load a saved scenario, select it from the “Save” menu, and choose “Load This Scenario”. The saved steps will appear in the scenario control box on the instructor view.

Tap one of the scenario steps to load the step, then use the “Update Monitor” button to change the student monitor as normal.

Can I use my own images as part of my simulation?
Yes, as an instructor you can load your own images into TruMonitor for future use.

1. From the instructor view, tap the “Image” icon in the menu
2. Select a category you wish to add an image to. If you have no specific category to use, just select “Custom”
3. Tap “Add New Image” and select the image you want to load from your gallery. Rename it for your own reference as required.
4. To send your custom image to the image to a student, select it through the “Investigations” menu as normal.
**Student Mode**

Can I use student mode without an instructor connected?
Yes, you can use student mode without an instructor connected, but some features are limited. Tap on each of the waveform areas to enable or disable the traces, and tap the numbers to edit their values. ECG patterns can be changed using the “Prepare ECG” and activated using the “Activate ECG”, “Defib” or “CPR” buttons.

Can the student control the monitor when an instructor is connected?
The student will be able to control certain parts of the monitor, to carry out functions such as changing alarm levels, setting timers or using pacing/defibrillation function. The student will not be able to adjust any of the patient’s physiological parameters while an instructor is connected as these can only be adjusted by the instructor.

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