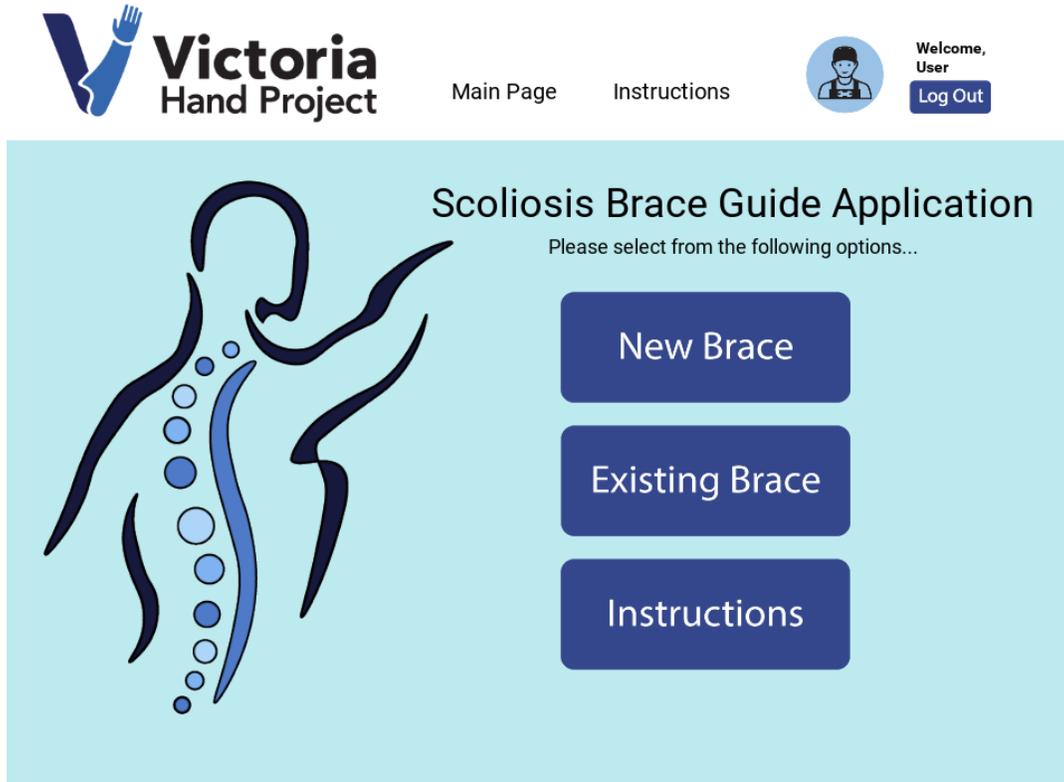
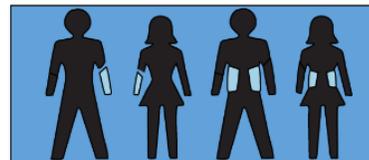
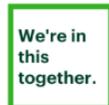


Running Scoliosis Brace Designer Software



The screenshot shows the user interface of the Scoliosis Brace Guide Application. At the top left is the logo for the Victoria Hand Project, which consists of a stylized blue hand icon and the text "Victoria Hand Project". To the right of the logo are two navigation links: "Main Page" and "Instructions". Further right is a user profile icon with the text "Welcome, User" and a "Log Out" button. The main content area has a light blue background. On the left is a stylized illustration of a human torso showing the spine with several vertebrae highlighted in blue. To the right of the illustration, the title "Scoliosis Brace Guide Application" is displayed, followed by the instruction "Please select from the following options...". Below this instruction are three large, dark blue buttons with white text: "New Brace", "Existing Brace", and "Instructions".

Powered By...



March 30th, 2021

Prepared by Kelly Knights

Revised by: Maggie Robinson

The following are detailed instructions on how to use the Scoliosis Brace Designer Software created by the Victoria Hand Project. If you have not installed the software yet, please see the **'Installing-Scoliosis-Software'** document.

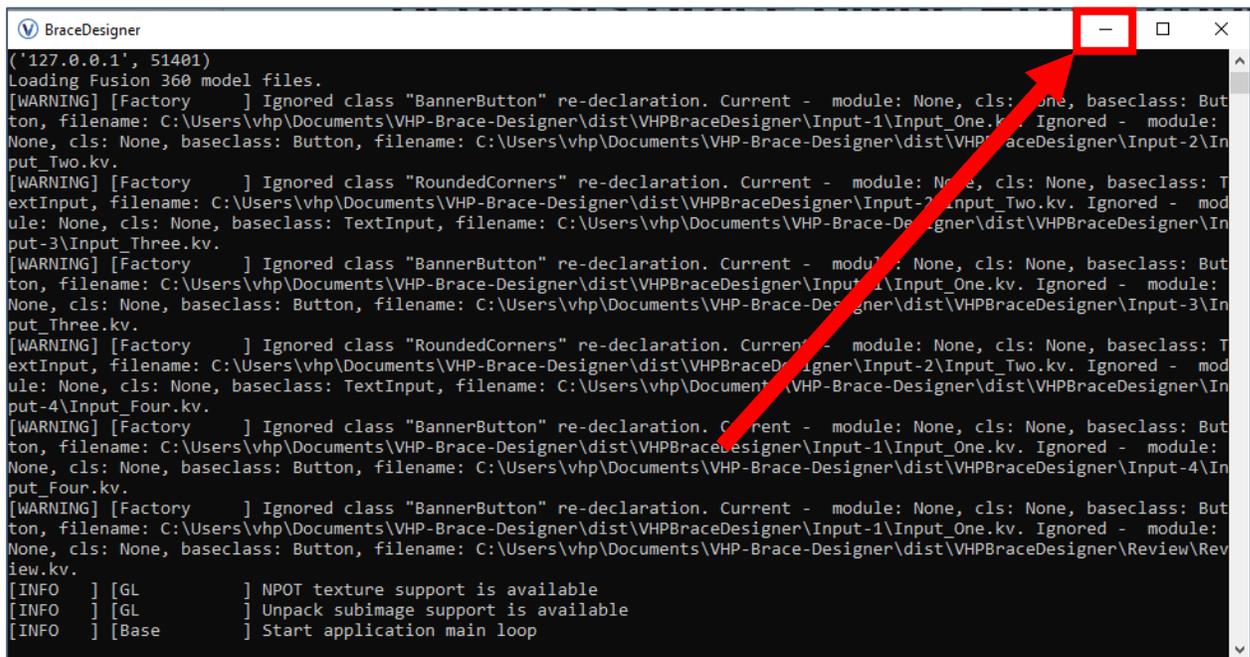
- 1) Open Fusion 360 – Wait for this to be fully loaded before continuing.



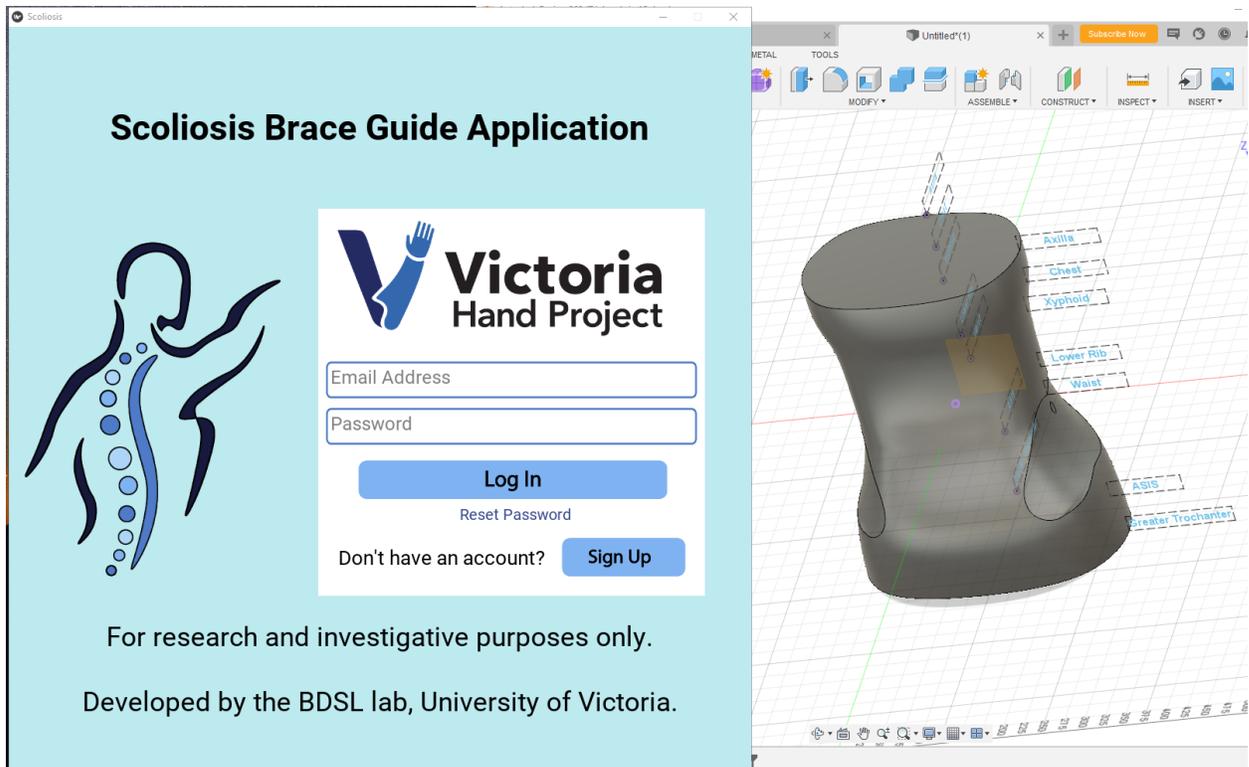
- 2) Click on the VHP shortcut to run the VHPBraceDesigner.exe executable.



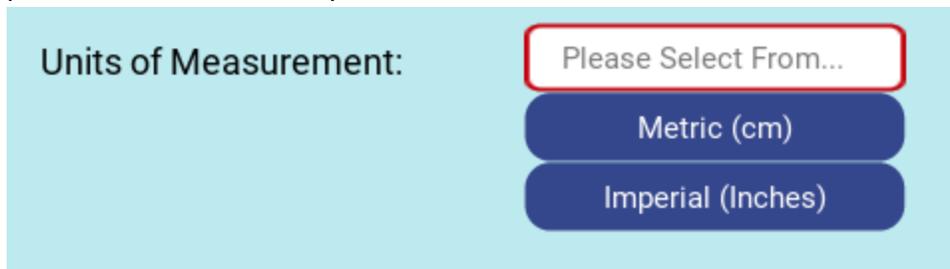
- 3) A dark command screen will appear, as well as the main user interface (UI). Please MINIMIZE the command prompt (do not close it).



- 4) A default brace should appear on the Fusion 360 screen. Move both screens to be side by side so you can see the UI (left in image below) and the default brace for preview (right in image below).



- 5) Click '**Log In**' and then '**New Brace**'. For Demo purposes, you can skip entering the patient information, but you must choose the Units of Measurement.



Click the  button to advance to the next steps.

- 6) Enter the Front Measurements of the brace you would like to generate. At this time, the software **DOES NOT** require the circumference measurements. The software **DOES** require Medial-Lateral, Anterior-Posterior and Superior-Inferior measurements. To generate a preview on the Fusion screen, press the '**Update Brace**' button. You may need to wait approximately 5 minutes to see your changes reflected on the Fusion screen. *****PLEASE MAKE SURE TO CLICK UPDATE BRACE BEFORE ADVANCING TO THE NEXT PAGE*****

Scoliosis Brace Fitting Sheet

Step 2 of 8

Front Measurements

Please fill out ALL required fields

Circumference

Enter # (in)

Medial / Lateral

Enter # (in)

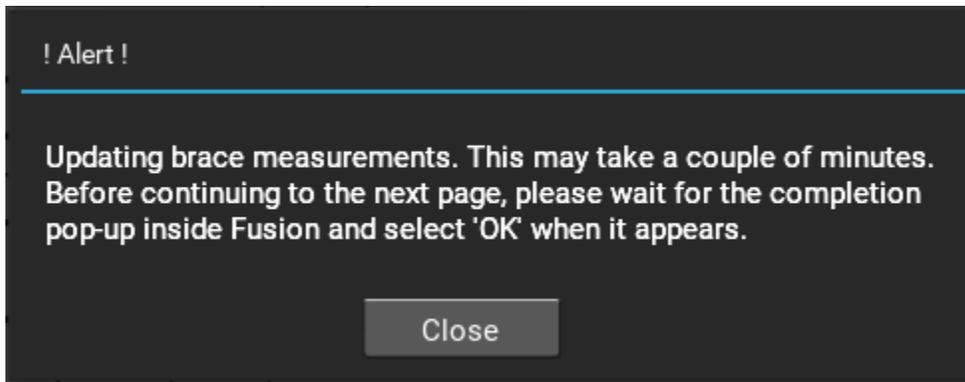
Anterior / Posterior

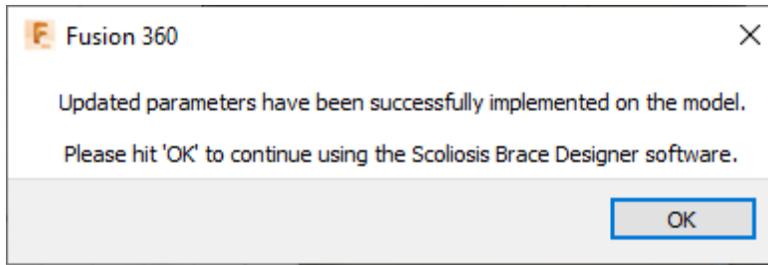
Enter # (in)

Anterior View

⏪
Update Brace
⏩

After the Update Brace button has been pressed a pop up will appear in the UI (first image below) reminding you to wait for a pop up in Fusion. The pop up in Fusion will appear when the changes have been implemented and it is safe to proceed (second image below). Click “OK” in Fusion, and “Close” in the UI.





- 7) The next page (Step 3) will provide you with instructions on how to overlay an X-Ray image (optional). Scroll through these instructions if an X-Ray overlay is desired.

XRay Overlay (Optional)
Step 3 of 8

If you have an XRay of the patient that you would like to overlay on the 3D model, please follow the instructions below to insert it as a .jpg or .png file.

If you do not have an XRay, please proceed to the next page.

XRay Insertion Instructions

Step 1: On the Fusion 360 Screen where you can see the brace, click on the picture titled 'Insert' in the top right corner.

⏪
⏩

- 8) The next 3 pages (Step 4,5,6) will allow twists and shifts (Medial/Lateral Shift, Anterior/Posterior Shift, Twist Adjustment). To twist/shift toggle on the desired level and then enter the desired value, or use the quick measurement buttons to change all toggled measurements. **Be sure to press Update Brace once the values have been entered.**

X-Ray View Toggle

Scoliosis Brace Fitting Sheet

Step 4 of 8

Medial / Lateral Shift

Anterior View

Shift Medial / Lateral
(- to shift left, + to shift right)

$\leftarrow \text{---} \bullet \text{---} \rightarrow$

All adjustments in inches

- 9) Click the button to advance to Step 7 (Back Measurements). Velcro Levels to Waist Level (upper, middle, lower), L4 to Waist Level, and Reduced Waist are required. **Be sure to press Update Brace once the values have been entered.**

X-Ray View Toggle **Scoliosis Brace Fitting Sheet** Step 7 of 8

XRay ON

Back Measurements

Please fill out ALL required fields

Iliac Crest Reduction

Iliac Crest Reduction Posterior View

⏪
Update Brace
⏩

10) Click the ⏩ button to advance to the next page (Side Measurements). At this time, all fields are mandatory. **Be sure to press Update Brace once the values have been entered.** This update should be close to instantaneous on Fusion.

X-Ray View Toggle
XRay ON

Scoliosis Brace Fitting Sheet

Side Measurements

Please fill out ALL required fields

Step 8 of 8

Abdominal Reduction

Abdominal Reduction

Lateral View

Lower Rib Level

Horizontal Abdominal Reduction

GT Level

L4 Level

Reduced Abdomen

Enter # (in)

Xyphoid Level

Distance below Xyphoid for Vertical Abdominal Reduction

Enter # (in)

GT Level

Update Brace

- 11) Click the  button to advance to the next page. You are able to review the values you entered on this page. Click '**Confirm Brace Measurements**' then advance to the next page.

Scoliosis Brace Fitting Sheet

Review and Confirm Information.

**NOTE: When you confirm these measurements you will not be able to edit them anymore.
The next stages will create the brace shell.**

AP Axilla: 12	AP ASIS: 12	Lower Velcro: 2	Axilla Shift Y: -0.3
ML Axilla: 13.5	ML ASIS: 14	L4 to Waist: 3	Chest Shift Y: -0.2
Axilla Circ.:	ASIS Circ.:	Gluteal Fold to Waist: 7	Xyphoid Shift Y: -0.1
AP Chest: 12.5	AP GT: 13	Scapula to Waist: 2	Rib Shift Y: 0.0
ML Chest: 14	ML GT: 14.5	ML Finished Waist: 11	Waist Shift Y: -0.3
Chest Circ.:	GT Circ.:	ASIS Distance: 20	ASIS Shift Y: -0.5
AP Xyphoid: 10	Sternal Notch to Waist: 13	AP Finished Waist: 8.5	GT Shift Y: -0.1
ML Xyphoid: 12.5	Axilla to Waist: 11	Reduction Below Xyphoid: 2	Axilla Rotation: -1
Xyphoid Circ.:	Chest to Waist: 9	Axilla Shift X: -0.1	Chest Rotation:
AP Lower Ribs: 10	Xyphoid to Waist: 6	Chest Shift X: -0.1	Xyphoid Rotation: -5
ML Lower Ribs: 13.2	Lower Rib to Waist: 4	Xyphoid Shift X: -0.1	Rib Rotation:
Lower Rib Circ.:	Waist to ASIS: 3	Rib Shift X: 0.0	Waist Rotation:
AP Waist: 9	Waist to GT: 6	Waist Shift X: 0.0	ASIS Rotation:
ML Waist: 13	Upper Velcro: 5	ASIS Shift X: 0.0	GT Rotation:
Waist Circ.:	Middle Velcro: 3	GT Shift X: -0.1	

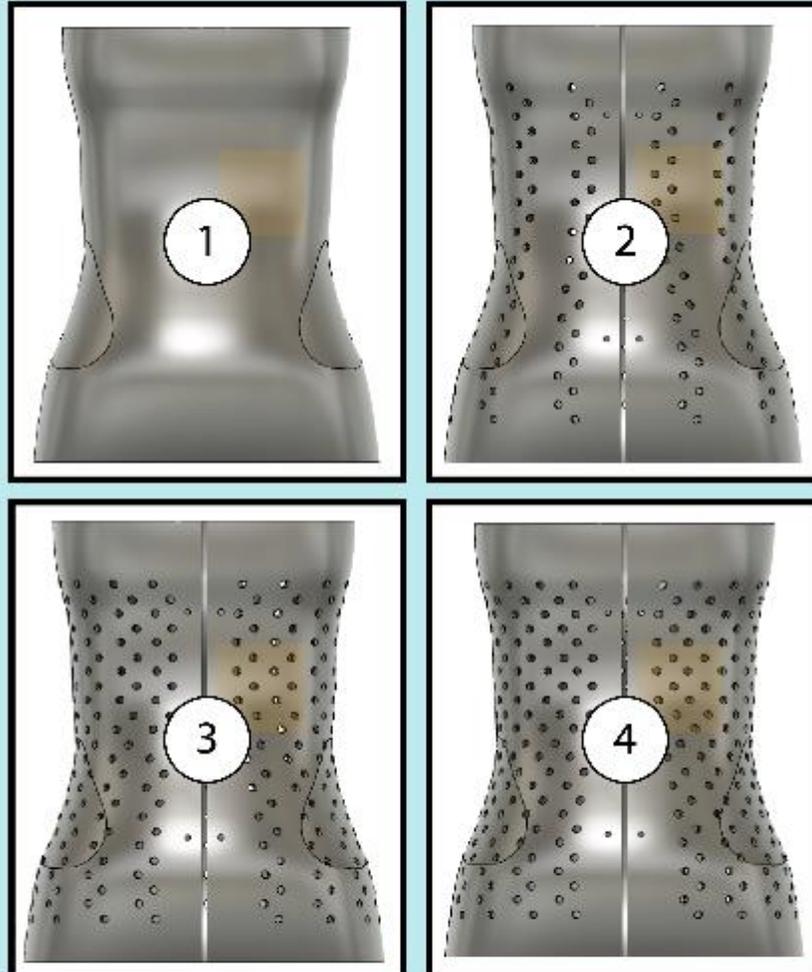
**Confirm Brace
Measurements**



- 12) The final step is to choose the desired hole pattern and export the final brace. Once a hole type is chosen you cannot make any further changes or return to previous steps. Chose the hole type from the drop down menu then click '**Update Brace**'.

Scoliosis Brace Fitting Sheet

Hole Selection and Final Brace Export



- 13) Click the  button then click 'Create Brace Shell' to save a .csv and .stl file for reference later. Name the file and click 'Save' **Be sure not to exit the UI until the pop up has appeared in Fusion.**



14) You are done! Your custom brace has been generated. Thank you very much for your time, and we look forward to hearing your feedback.