

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

LONESTAR BIOMETRICS LLC,)	
)	Case No.
Plaintiff,)	
)	<u>JURY TRIAL DEMANDED</u>
v.)	
)	
SAMSUNG ELECTRONICS CO., LTD and)	
SAMSUNG ELECTRONICS AMERICA,)	
INC.,)	
)	
)	
Defendants.)	

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Lonestar Biometrics LLC. (“LB” or “Plaintiff”) for its Complaint against Defendants Samsung Electronics Co., Ltd. (“Samsung Electronics”) and Samsung Electronics America, Inc. (“Samsung Electronics America”) (collectively “Samsung” or “Defendants”) for patent infringement as follows:

THE PARTIES

1. LB is a limited liability company organized and existing under the laws of the State of Texas, with its principal place of business located at 104 E. Houston Street, Marshall, TX 75670.
2. Defendant Samsung Electronics is a corporation organized and existing under the laws of the Republic of Korea, with its principal place of business at 129 Samsung-Ro, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, 443-742, Republic of Korea. Samsung is a leading manufacturer and seller of smart phones in the world and in the United States. Upon information and belief, Samsung Electronics does business in Texas, directly or through intermediaries, and offers its products and/or services, including those accused herein of infringement, to customers and

potential customers located in Texas, including in the Judicial District of the Eastern District of Texas.

3. Defendant Samsung Electronics America is a corporation organized under the laws of New York, with its principal place of business at 85 Challenger Road, Ridgefield Park, NJ 07660. Upon information and belief, Samsung Electronics America has corporate offices in the Eastern District of Texas at 1303 East Lookout Drive, Richardson, Texas 75082 and 2800 Technology Drive, Suite 200, Plano, Texas 75074. Samsung Electronics America has publicly indicated that in early 2019, it would be centralizing multiple offices in a new location in the Eastern District of Texas at the Legacy Central office campus, located at 6225 Declaration Drive, Plano, Texas 75023. Samsung Electronics America may be served with process through its registered agent CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201-3136.

JURISDICTION

4. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.* This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

5. This Court has specific and personal jurisdiction over each of the Defendants consistent with the requirements of the Due Process Clause of the United States Constitution and the Texas Long Arm Statute. Upon information and belief, each Defendant has sufficient minimum contacts with the forum because each Defendant transacts substantial business in the State of Texas and in this Judicial District. Further, each Defendant has, directly or through subsidiaries or intermediaries, committed and continues to commit acts of patent infringement in the State of Texas and in this Judicial District as alleged in this Complaint, as alleged more particularly below.

6. Venue is proper in this Judicial District pursuant to 28 U.S.C. §§ 1400(b) and 1391(b) and (c) because each Defendant is subject to personal jurisdiction in this Judicial District, has committed acts of patent infringement in this Judicial District, and has a regular and established place of business in this Judicial District. Each Defendant, through its own acts and/or through the acts of each other Defendant, makes, uses, sells, and/or offers to sell infringing products within this Judicial District, regularly does and solicits business in this Judicial District, and has the requisite minimum contacts with the Judicial District such that this venue is a fair and reasonable one. Further, upon information and belief, the Defendants have admitted or not contested proper venue in this Judicial District in other patent infringement actions.

PATENTS-IN-SUIT

7. On January 5, 2016, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,232,088 (the “’088 Patent”) entitled “Scanning in a Defined Region on a Display Screen”. A true and correct copy of the ’088 Patent is available at: <http://pdfpiw.uspto.gov/.piw?Docid=9232088>.

8. On January 16, 2016, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,241,082 (the “’082 Patent”) entitled “Method and Apparatus for Scanning Through a Display Screen”. A true and correct copy of the ’082 Patent is available at: <http://pdfpiw.uspto.gov/.piw?Docid=9241082>.

9. On January 31, 2017, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 9,560,293 (the “’293 Patent”) entitled “Method and Apparatus for Image Capture Through a Display Screen”. A true and correct copy of the ’082 Patent is available at: <http://pdfpiw.uspto.gov/.piw?Docid=9560293>.

10. LB is the sole and exclusive owner of all right, title, and interest in the ’088 Patent,

the '082 Patent, and the '293 Patent (collectively, the "Patents-in-Suit"), and holds the exclusive right to take all actions necessary to enforce its rights to the Patents-in-Suit, including the filing of this patent infringement lawsuit. LB also has the right to recover all damages for past, present, and future infringement of the Patents-in-Suit and to seek injunctive relief as appropriate under the law.

11. LB has at all times complied with the marking provisions of 35 U.S.C. § 287 with respect to the Patents-in-Suit. Upon information and belief, prior assignees and licensees have also complied with the marking provisions of 35 U.S.C. § 287.

FACTUAL ALLEGATIONS

12. The Patents-in-Suit generally relate to methods and apparatuses for scanning and/or capturing images through a display screen.

13. The relate to technology involving scanning and image capturing through a display screen in mobile and handheld devices. The technology described in the Patents-in-Suit was developed by Darwin Hu. For example, the technology is implemented by infringing mobile and handheld devices with optical fingerprint scanners embedded underneath the display screens. Samsung has infringed and is continuing to infringe the Patents-in-Suit by making, using, selling, offering to sell, and/or importing, and by actively inducing others to make, use, sell, offer to sell, and/or importing, products including but not limited to mobile and/or handheld devices with optical fingerprint scanners embedded beneath the display screen, such as the Samsung Galaxy S21 FE, among other products.

COUNT I (Infringement of the '088 Patent)

14. Paragraphs 1 through 13 are incorporated by reference as if fully set forth herein.

15. LB has not licensed or otherwise authorized Defendants to make, use, offer for sale,

sell, or import any products that embody the inventions of the '088 Patent.

16. Defendants have and continue to directly infringe the '088 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '088 Patent. Such products include mobile and/or handheld devices with optical fingerprint scanners embedded beneath the display screen, such as the Samsung Galaxy S21 FE, among other products.

17. For example, Defendants have and continue to directly infringe at least claim 1 of the '088 Patent by making, using, offering to sell, selling, and/or importing into the United States products that include mobile phones with an optical fingerprint scanner embedded beneath the display screen, such as the Samsung Galaxy S21 FE:



18. The Samsung Galaxy S21 FE is a computing device which comprises a display device having a viewing area for displaying content, the display device caused to display a scanning region for a user to place a scanning object onto the display device in accordance with the scanning region, wherein the scanning region is defined visibly to the user and smaller than the viewing area in size, a portion of the scanning object falling into the scanning region is scanned

¹ <https://matridox.com/2022/01/03/samsung-finally-announces-the-galaxy-s21-fe-with-last-years-specs-5g-optical-fingerprint-reader/>.

by an array of sensors embedded in the display device:



² https://www.t-mobile.com/support/public-files/attachments/samsung/samsung-galaxy-s21-fe-5g/Samsung%20Galaxy%20S21%20FE%205G_English%20User%20Guide_FINAL2.pdf.

19. For example, the Samsung Galaxy S21 FE also contains and a circuit module, coupled to sensors, reading out sensing signals from the sensors to produce an image of the portion of the scanning object, wherein the image captures details on the portion of the scanning object.

20. Defendants have and continue to indirectly infringe one or more claims of the '088 Patent by knowingly and intentionally inducing others, including Samsung customers and end-users, to directly infringe, either literally or under the doctrine of equivalents, by making, using, offering to sell, selling and/or importing into the United States products that include infringing technology, such as mobile and/or handheld devices with optical fingerprint scanners embedded beneath the display screen.

21. Defendants, with knowledge that these products, or the use thereof, infringe the '088 Patent at least as of the date of this Complaint, knowingly and intentionally induced, and continues to knowingly and intentionally induce, direct infringement of the '088 Patent by providing these products to end users for use in an infringing manner.

22. Defendants have induced infringement by others, including end users, with the intent to cause infringing acts by others or, in the alternative, with the belief that there was a high probability that others, including end users, infringe the '088 Patent, but while remaining willfully blind to the infringement.

23. LB has suffered damages as a result of Defendant's direct and indirect infringement of the '088 Patent in an amount to be proven at trial.

24. LB has suffered, and will continue to suffer, irreparable harm as a result of Defendants' infringement of the '088 Patent, for which there is no adequate remedy at law, unless Defendants' infringement is enjoined by this Court.

COUNT II
(Infringement of the '082 Patent)

25. Paragraphs 1 through 13 are incorporated by reference as if fully set forth herein.

26. LB has not licensed or otherwise authorized Defendant to make, use, offer for sale, sell, or import any products that embody the inventions of the '082 Patent.

27. Defendants have and continue to directly infringe the '082 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '082 Patent. Such products include mobile and/or handheld devices with optical fingerprint scanners embedded beneath the display screen, including, but not limited to, the Samsung Galaxy S21 FE, among other products.

28. For example, Defendants have and continue to directly infringe at least claim 20 of the '082 Patent by making, using, offering to sell, selling, and/or importing into the United States products that include mobile phones with an optical fingerprint scanner embedded beneath the display screen, such as the Samsung Galaxy S21 FE, among other products.

29. The Samsung Galaxy S21 FE is a display device which comprises a display unit driven to display thereon at least a scanning region:



30. The Samsung Galaxy S21 FE further comprises a sensing module integrated with the display unit:

³ https://www.t-mobile.com/support/public-files/attachments/samsung/samsung-galaxy-s21-fe-5g/Samsung%20Galaxy%20S21%20FE%205G_English%20User%20Guide_FINAL2.pdf.

As you get ready to start using the S21 FE's fingerprint sensor, there are a few tips to keep in mind for doing so. Similar to the S21 and S20 FE, the Galaxy S21 FE's fingerprint sensor is an optical one that resides underneath the display. On the lock screen and when logging into certain apps, a fingerprint icon appears towards the bottom of the display where the sensor is. Place your finger on the fingerprint icon, and the lock screen or app should unlock in an instant.

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31. The Samsung Galaxy S21 FE further comprises at least a light source to illuminate a portion of an object being placed in the scanning region and against the display unit, wherein the display unit is driven to have a moment of see-through, and at least a source is turned on to cause the sensing module to generate an image of the portion of the object:

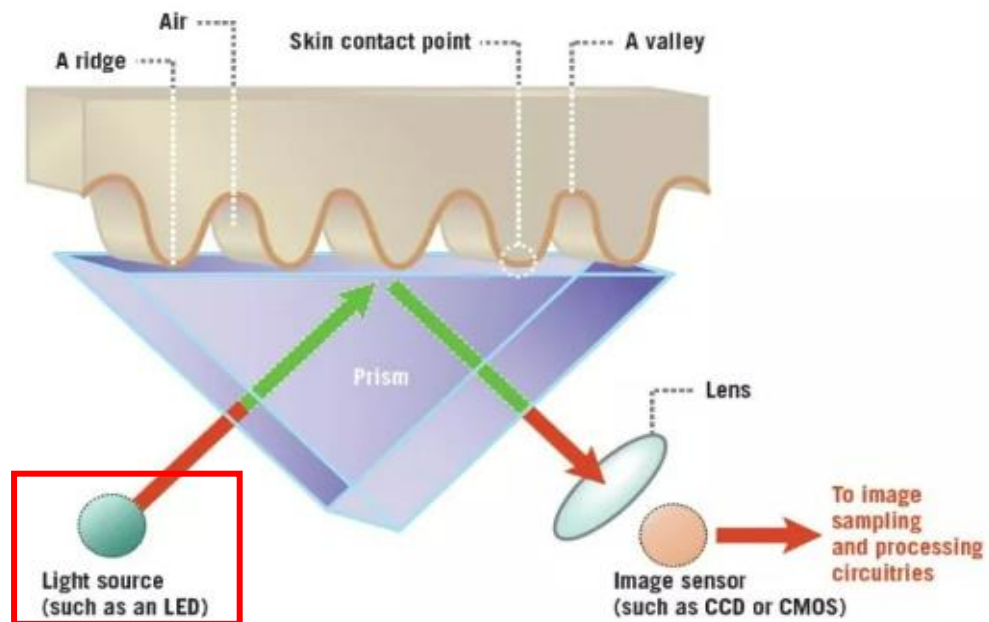
⁴ <https://screenrant.com/samsung-galaxy-s21-fe-have-fingerprint-sensor-explained/>.

Optical scanners

Optical fingerprint scanners are the oldest method of capturing and comparing fingerprints. As the name suggests, this technique relies on capturing an optical image — essentially a photograph. It then uses algorithms to detect unique patterns on the surface, such as ridges or marks, by analyzing the lightest and darkest areas of the image.

Just like smartphone cameras, these sensors have a finite resolution. The higher the resolution, the finer details the sensor can discern about your finger, increasing the level of security. However, these sensors capture much higher contrast images than a regular camera. Optical scanners typically have a very high number of diodes per inch to capture these details up close. Of course, it's very dark when your finger is placed over the scanner. The scanners, therefore, incorporate arrays of LEDs or even your phone's display as a flash to light up the picture come scan time.

An optical sensor.



32. Defendants have and continue to indirectly infringe one or more claims of the '082 Patent by knowingly and intentionally inducing others, including Samsung customers and end-users, to directly infringe, either literally or under the doctrine of equivalents, by making, using, offering to sell, selling and/or importing into the United States products that include infringing technology, such as mobile and/or handheld devices with optical fingerprint scanners embedded

⁵ <https://www.androidauthority.com/how-fingerprint-scanners-work-670934/>.

beneath the display screen.

33. Defendants, with knowledge that these products, or the use thereof, infringe the '082 Patent at least as of the date of this Complaint, knowingly and intentionally induced, and continues to knowingly and intentionally induce, direct infringement of the '082 Patent by providing these products to end users for use in an infringing manner.

34. Defendants have induced infringement by others, including end users, with the intent to cause infringing acts by others or, in the alternative, with the belief that there was a high probability that others, including end users, infringe the '082 Patent, but while remaining willfully blind to the infringement.

35. LB has suffered damages as a result of Defendant's direct and indirect infringement of the '082 Patent in an amount to be proven at trial.

36. LB has suffered, and will continue to suffer, irreparable harm as a result of Defendants' infringement of the '082 Patent, for which there is no adequate remedy at law, unless Defendants' infringement is enjoined by this Court.

COUNT III
(Infringement of the '293 Patent)

37. Paragraphs 1 through 13 are incorporated by reference as if fully set forth herein.

38. LB has not licensed or otherwise authorized Defendant to make, use, offer for sale, sell, or import any products that embody the inventions of the '293 Patent.

39. Defendants have and continue to directly infringe the '293 Patent, either literally or under the doctrine of equivalents, without authority and in violation of 35 U.S.C. § 271, by making, using, offering to sell, selling, and/or importing into the United States products that satisfy each and every limitation of one or more claims of the '293 Patent. Such products include mobile and/or handheld devices with optical fingerprint scanners embedded beneath the display screen,

including, but not limited to, the Samsung Galaxy S21 FE, among other products.

40. For example, Defendants have and continue to directly infringe at least claim 1 of the '293 Patent by making, using, offering to sell, selling, and/or importing into the United States products that include mobile phones with an optical fingerprint scanner embedded beneath the display screen, such as the Samsung Galaxy S21 FE, among other products.

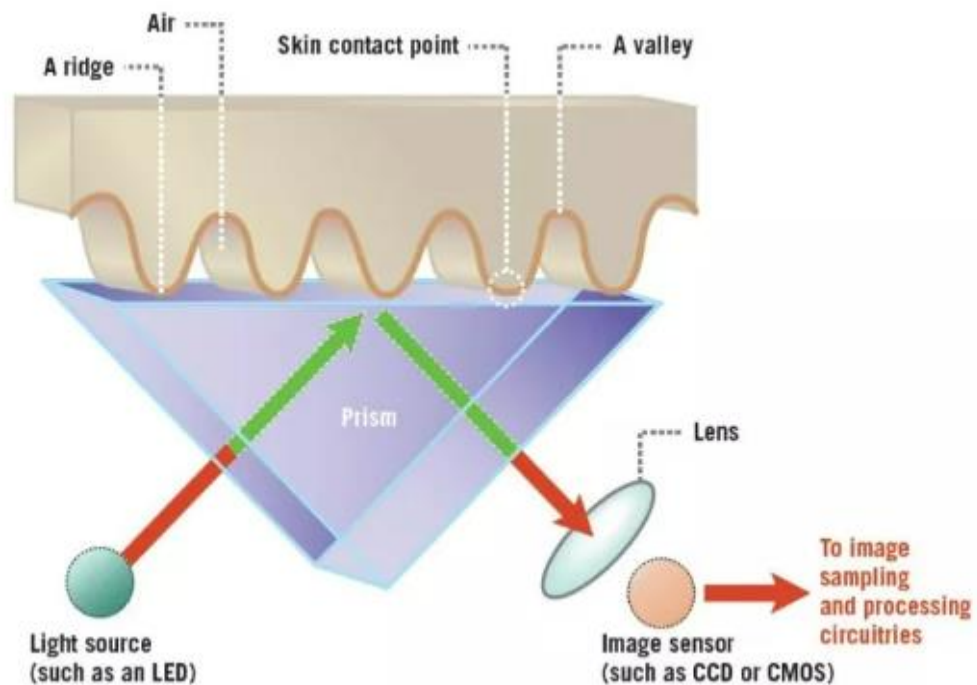
41. The Samsung Galaxy S21 FE is a display device which comprises a display unit. The Samsung Galaxy S21 FE further comprises an image sensing module including an optical assembly and an image sensor, wherein the optical assembly includes a first light guide with the first and second ends, the second end shaped in parabolic curvature and acting as an edge-type micro-optical light guide reflector, and the image sensor is disposed at a center of the first end:

Optical scanners

Optical fingerprint scanners are the oldest method of capturing and comparing fingerprints. As the name suggests, this technique relies on capturing an optical image — essentially a photograph. It then uses algorithms to detect unique patterns on the surface, such as ridges or marks, by analyzing the lightest and darkest areas of the image.

Just like smartphone cameras, these sensors have a finite resolution. The higher the resolution, the finer details the sensor can discern about your finger, increasing the level of security. However, these sensors capture much higher contrast images than a regular camera. Optical scanners typically have a very high number of diodes per inch to capture these details up close. Of course, it's very dark when your finger is placed over the scanner. The scanners, therefore, incorporate arrays of LEDs or even your phone's display as a flash to light up the picture come scan time.

An optical sensor.



42. The Samsung Galaxy S21 FE is a display device wherein the display unit is driven to have a moment of see-through so that an object placed against the display unit is imaged by the image sensor via the first light guide that collects and focuses the reflected light onto the image

⁶ <https://www.androidauthority.com/how-fingerprint-scanners-work-670934/>.

sensor.

43. Defendants have and continue to indirectly infringe one or more claims of the '293 Patent by knowingly and intentionally inducing others, including Samsung customers and end-users, to directly infringe, either literally or under the doctrine of equivalents, by making, using, offering to sell, selling and/or importing into the United States products that include infringing technology, such as mobile and/or handheld devices with optical fingerprint scanners embedded beneath the display screen.

44. Defendants, with knowledge that these products, or the use thereof, infringe the '293 Patent at least as of the date of this Complaint, knowingly and intentionally induced, and continues to knowingly and intentionally induce, direct infringement of the '293 Patent by providing these products to end users for use in an infringing manner.

45. Defendants have induced infringement by others, including end users, with the intent to cause infringing acts by others or, in the alternative, with the belief that there was a high probability that others, including end users, infringe the '293 Patent, but while remaining willfully blind to the infringement.

46. LB has suffered damages as a result of Defendants' direct and indirect infringement of the '293 Patent in an amount to be proven at trial.

47. LB has suffered, and will continue to suffer, irreparable harm as a result of Defendants' infringement of the '293 Patent, for which there is no adequate remedy at law, unless Defendants' infringement is enjoined by this Court.

DEMAND FOR JURY TRIAL

Plaintiff hereby demands a jury for all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, LB prays for relief against Defendants as follows:

- a. Entry of judgment declaring that Defendants have directly and/or indirectly infringed one or more claims of each of the Patents-in-Suit;
- b. An order pursuant to 35 U.S.C. § 283 permanently enjoining Defendants, their officers, agents, servants, employees, attorneys, and those persons in active concert or participation with them, from further acts of infringement of one or more of the Patents-in-Suit;
- c. An order awarding damages sufficient to compensate LB for Defendants' infringement of the Patents-in-Suit, but in no event less than a reasonable royalty, together with interest and costs;
- d. Entry of judgment declaring that this case is exceptional and awarding LB its costs and reasonable attorney fees under 35 U.S.C. § 285; and
- e. Such other and further relief as the Court deems just and proper.

Dated: June 28, 2022

Respectfully submitted,

/s/ John Andrew Rubino

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**ATTORNEYS FOR PLAINTIFF,
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