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**DOMESTIC VIOLENCE IN THE ERA OF THE SMART HOME:
USING SMART HOME TECHNOLOGY EVIDENCE TO HELP
VICTIMS OF ABUSE**

Tabetha Soberdash*

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I. INTRODUCTION

A. “Hey Google, Turn Off the Lights”

[1] Over the years, the smart home has gone from something used in movies to portray technological advances of the future to something easily achievable.¹ Rapidly, new smart home devices are being made and sold for individuals to add to their homes, allowing everyone to be able to have a smart home.² These devices include Google Homes, Amazon Echos, programmable vacuums, smart lights, and smart televisions.³ Homes that contain these devices allow an individual to do things like turn off all the lights in house, set a morning alarm for the next day, or search the internet for the answer to a question with just a simple voice command.⁴ Further, these devices can allow someone to adjust the temperature or lock the door at just a push of a button, even when they are not at home.⁵ By using linking sensors, specialized features, and the connection of the Internet of Things

¹ See Heetae Yang et al., *IoT Smart Home Adoption: The Importance of Proper Level Automation*, J. SENSORS (May 2018), <http://downloads.hindawi.com/journals/js/2018/6464036.pdf> [<https://perma.cc/P7DS-V9RT>] (“A smart home refers to a residence equipped with a communication network, high-tech house-hold devices, appliances, and sensors that can be remotely accessed, monitored, and controlled and that provide services responding to the residents’ needs.”); and Jessamyn Dahmen et al., *Smart Secure Homes: A Survey of Smart Home Technologies that Sense, Assess, and Respond to Security Threats*, J. RELIABLE INTELLIGENT ENV’TS, Aug. 2017, at 1, 1–2, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5616189/pdf/nihms852738.pdf> [<https://perma.cc/GEU8-AMR6>] (describing current availability of once-theoretical smart home solutions).

² See Gordon D. Cruse, *The Trouble with Devices and the Data They Contain*, 41 FAM. ADVOC. 33, 34 (2019).

³ See *id.*; Margaret Rouse, *Smart Home or Building (Home Automation or Domotics)*, IOT AGENDA (July 2020), <https://internetofthingsagenda.techtarget.com/definition/smart-home-or-building> [<https://perma.cc/P4BM-85J9>].

⁴ See Rouse, *supra* note 3.

⁵ See *id.*

(IoT), smart home technology can be remotely monitored, controlled, or accessed.⁶

B. Smart Home Technology Friend or Foe to Domestic Violence Survivors

[2] While these devices are designed to be useful and respond to the needs of the homeowner, the technology creates a new threat to domestic violence victims.⁷ From a distance, abusers can now use this technology to directly impact the environment of their victims by the simple push of a button or a single voice command.⁸ For example, a domestic abuser who had previously set up the smart home devices can now utilize the technology to do things such as: turn on the smart vacuum at 2 a.m., turn on and off all the lights in the house, change the alarm time on an Echo device from 7 a.m. to 2 a.m. or 10 a.m., turn off the refrigerator to cause all the food inside to spoil, turn on or off the air conditioning or heat, and unlock the door after the domestic violence survivor has gone to bed.⁹ Technology created to make life easier now suddenly makes life a living nightmare.¹⁰ However, what if smart home technology could also be used to help domestic violence survivors?

⁶ See Heetae Yang et al., *supra* note 1; See generally Nazmiye Balta-Ozkan et al., *Social Barriers to the Adoption of Smart Homes*, 63 ENERGY POL'Y 363, 364 (2013) (defining a smart home as a residence equipped with linking sensors among other technologies); Allan Grau, *Security for the Smart Home – Who Is Responsible?*, ICON LABS (2020) <https://www.iconlabs.com/prod/security-smart-home-%E2%80%93-who-responsible> [<https://perma.cc/6CZD-PVEN>] (noting how a smart home includes a network of specialized, connected devices).

⁷ Cruse, *supra* note 2 (demonstrating how smart home devices can be used by one spouse against another to disrupt the second spouse's peace and safety).

⁸ *See id.*

⁹ *Id.*

¹⁰ See Ryan Shanks & Francis Hintermann, *Designing Smart-Home Products That People Will Actually Use*, HARV. BUS. REV. (July 11, 2019), <https://hbr.org/2019/07/designing-smart-home-products-that-people-will-actually-use> [<https://perma.cc/5LYV-Y7KA>]; Cruse, *supra* note 2.

[3] As time has shown, proving domestic violence, particularly mental abuse, can be very difficult.¹¹ Often the survivor is the only witness to the abuse.¹² Furthermore, there can be a variety of reasons why survivors are reluctant to testify against their abusers and pursue civil and criminal remedies.¹³ Even when they do testify, it can often be difficult to prove their cases, especially if there is little physical evidence.¹⁴ As such, it is absolutely essential for practitioners to be able to introduce as much evidence of the abuse as they can gather.¹⁵

[4] Smart home technology has the potential to contribute towards the gathering of evidence in numerous ways. First, as many of these devices keep statistical records of use, the technology will provide traceable information that can confirm statements about the date and time of the alleged abuse. Secondly, many of these technologies record nearby sounds or images during their use.¹⁶ Collecting that evidence could make

¹¹ See Jane H. Aiken & Jane C. Murphy, *Evidence Issues in Domestic Violence Civil Cases*, 34 FAM. L. Q. 43, 44 (2000) (detailing barriers to proving domestic violence); Corttany Brooks, *A Proposal to Amend Rule of Evidence 404 to Admit "Prior Acts" Evidence in Domestic Violence Prosecutions*, 7 IND. J. L. SOC. EQUAL. 181, 182 (2019) (detailing barriers to proving domestic violence); Viktoria Isabel M., *Proving Emotional Abuse in Court: How Impossible Is It?*, MEDIUM (Aug. 3, 2017), <https://medium.com/broken-angels-project/proving-emotional-abuse-in-court-how-impossible-is-it-b3e42eb0c9ff> [<https://perma.cc/QC2D-M4TB>] (detailing barriers to proving mental abuse in domestic violence cases).

¹² Aiken & Murphy, *supra* note 11, at 43–44.

¹³ *Id.*

¹⁴ See *id.*; Brooks, *supra* note 11.

¹⁵ Aiken & Murphy, *supra* note 11, at 45.

¹⁶ See, e.g., *Alexa Terms of Use*, AMAZON (June 30, 2020), <https://www.amazon.com/gp/help/customer/display.html?nodeId=201809740> [<https://perma.cc/JGZ9-YTH8>].

substantial progress towards proving domestic abuse, as these devices may directly record the abuse.¹⁷

[5] However, the law surrounding the admissibility of evidence collected from smart home technology is unclear and undecided. Some argue that the use of this evidence will potentially implicate concerns regarding both a person's expectation of privacy and their constitutional rights.¹⁸ In particular, concerns about protecting an individual's First, Fourth, Fifth, and Sixth Amendment rights have arisen in discussions about the admissibility of smart home technology evidence.¹⁹ In response to these concerns, this article will demonstrate how smart home technology is an effective and constitutionally sound tool for proving domestic violence and enhancing protections for survivors of domestic violence.

[6] Part II of this article will describe cases of when smart technology evidence has been sought and how it could be beneficial for proving domestic violence cases as well. Part III of this article will address First Amendment concerns of utilizing this technology as evidence. Part IV of this article will address Fourth Amendment concerns of utilizing this technology as evidence. Part V of this article will address Fifth Amendment concerns of utilizing this technology as evidence when the dealing with criminal domestic violence cases. Part VI of this article will address Sixth Amendment concerns of utilizing this technology as evidence against the accused. Finally, this article will conclude with the determination that smart

¹⁷ See Michael Harrigan, *Privacy Versus Justice: Amazon's First Amendment Battle in the Cloud*, 45 W. ST. L. REV. 91, 94-96 (2017).

¹⁸ See *id.*; Tara Melancon, "Alexa, Pick an Amendment": A Comparison of First and First Amendment Protections of Echo Device Data, 45 S. UNIV. L. REV. 302, 304 (2018).

¹⁹ See, e.g., Harrigan, *supra* note 17; Melancon, *supra* note 18; Daniel B. Garrie & Daniel K. Gelb, *E-Discovery in Criminal Cases: A Need for Specific Rules*, 43 SUFFOLK UNIV. L. REV. 393, 407 (2010); Deirdre M. Smith, Address at the Philip D. Reed Lecture Series Advisory Committee on Evidence Rules: Panel Discussion: Symposium on the Challenges of Electronic Evidence (Apr. 4, 2014), in 83 FORDHAM L. REV. 1163, 1217-19 (2014) (discussing Sixth Amendment concerns in the face of electronic evidence offered as admissible hearsay).

home technology data can and should serve as evidence in domestic violence cases.

II. THE IMPORTANCE OF ADMITTING SMART HOME TECHNOLOGY EVIDENCE IN DOMESTIC VIOLENCE CASES

[7] As previously mentioned, proving domestic violence in court is incredibly difficult, and therefore, so is protecting individuals against domestic abuse.²⁰ This is due, in part, to the fact that the victim is often the only witness of the abuse.²¹ As such, individuals who use violence and mental manipulation to control their domestic partners have routinely avoided conviction.²² Because the prosecution of domestic violence cases creates a unique type of prosecution where physical evidence and testifying witnesses may be lacking,²³ it is highly crucial for prosecuting attorneys to gather as much proof of the abuse as possible.

[8] Recent years have shown an increased desire to use smart home technology evidence to investigate crimes where there is a lack of witnesses.²⁴ For example, in November 2015, information and data from an Amazon Echo device was sought after Victor Collins was found dead in a

²⁰ Aiken & Murphy, *supra* note 11; Brooks, *supra* note 11.

²¹ Aiken & Murphy, *supra* note 11.

²² Brooks, *supra* note 11, at 181–82.

²³ *Id.*

²⁴ See, e.g., Arkansas v. Bates, No. CR20160370, 2016 WL 7587403 (Ark. Cir. 2016); John G. Browning & Lisa Angelo, *Alexa, Testify: New Sources of Evidence from the Internet of Things*, 82 TEX. B. J. 506, 506–07 (2019).

friend's hot tub.²⁵ The friend and homeowner was James Bates.²⁶ Mr. Bates had told the police that he and Collins had been socializing and drinking that night with friends and that all was fine when he went to bed and left Collins and another friend alone in the hot tub.²⁷ Upon finding Mr. Collins body the next morning, it was noted that Mr. Collins had a black eye, cuts and bruises, and blood coming from his mouth and nose.²⁸

[9] Additionally, it appeared the rim of the hot tub and the surrounding patio had been sprayed off.²⁹ On February 22, 2016, Mr. Bates was arrested for first-degree murder.³⁰ His Amazon Echo device became of interest when someone present the night of Collins' death recalled hearing music through the device.³¹ The police proceeded to serve a warrant on Amazon seeking all "audio recordings, transcribed records, or other text recordings related to communication and transcription" from Bates's device around the time of the murder.³² However, Amazon refused to turn over the information.³³ Eventually, Bates individually agreed to release the

²⁵ Elliott C. McLaughlin & Keith Allen, *Alexa, Can You Help Us with This Murder Case?*, CNN (Dec. 28, 2016, 8:48 PM) <https://www.cnn.com/2016/12/28/tech/amazon-echo-alexa-bentonville-arkansas-murder-case-trnd/index.html> [<https://perma.cc/45ESL9X5>].

²⁶ *Id.*

²⁷ Affidavit of Probable Cause to Obtain an Arrest Warrant, *Arkansas v. Bates*, No. CR20160370, 2016 WL 7587396 (Ark. Cir. Ct. Feb. 22, 2016).

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ *Arkansas v. Bates*, No. CR20160370, 2016 WL 7587403 (Ark. Cir. 2016).

³² Harrigan, *supra* note 17, at 93.

³³ *See id.*

information to the prosecution.³⁴ Following, the case against Bates was dismissed.³⁵ Therefore, the court was not given the opportunity to evaluate Amazon's objections to providing the evidence.

[10] Another example is when the police sought to use smart home technology data as evidence after the 2017 murders of Christine Sullivan and Jenna Pellegrini.³⁶ The police suspected Timothy Verrill killed the women, because Verrill became suspicious that the women were informing the police about his criminal activities.³⁷ Police requested data from the home's Amazon Echo, believing the device may have captured information that could help solve the murder.³⁸ However, Amazon initially refused to turn over the evidence, stating it would "not release customer information without a valid and binding legal demand properly served on us."³⁹ In November 2018, a judge signed an order on motion to search in lieu of a search warrant directing Amazon to produce the requested recordings.⁴⁰ Ultimately, however, at the end of October 2019, the case resulted in a

³⁴ *Id.*

³⁵ Nicole Chavez, *Arkansas Judge Drops Murder Charge in Amazon Echo Case*, CNN (Dec. 2, 2017), <https://www.cnn.com/2017/11/30/us/amazon-echo-arkansas-murder-case-dismissed/index.html> [<https://perma.cc/ZL7C-FRBL>].

³⁶ See Browning & Angelo, *supra* note 25, at 507.

³⁷ *Id.*

³⁸ *Id.*

³⁹ See Meagan Flynn, *Police Think Alexa May Have Witnessed a New Hampshire Double Homicide. Now They Want Amazon to Turn Her over.*, WASH. POST (Nov. 14, 2018, 7:28 AM), <https://www.washingtonpost.com/nation/2018/11/14/police-think-alexa-may-have-witnessed-new-hampshire-double-slaying-now-they-want-amazon-turn-her-over/> [<https://perma.cc/5V7N-E34F>] (quoting an Amazon spokesperson's statement to the Post); Browning & Angelo, *supra* note 24.

⁴⁰ David Moser, *Witness for the Prosecution: A Smart Speaker?*, LAW360 (Aug. 7, 2019, 1:23 PM), <https://www.law360.com/articles/1185689/witness-for-the-prosecution-a-smart-speaker-> [<https://perma.cc/GGJ2-6GDJ>].

mistrial for repeated failure by the prosecution to produce crucial evidence to the defense to shape its case.⁴¹

[11] As these cases have not developed in a manner that would allow for further determination on the constitutionality of requiring smart home technology manufacturing corporations to deliver data throughout an investigation, courts have not had the opportunity to rule on the matter.⁴² However, under current constitutional law and doctrines, if given the opportunity courts will likely decide in favor of allowing such data to be used as evidence in court and allow the government to seek it in their investigations. As such, the data could be used as evidence to prove domestic violence in an effective manner that would be constitutionally sound.

III. ADDRESSING FIRST AMENDMENT CONCERNS ON ADMITTING SMART HOME TECHNOLOGY EVIDENCE

A. Data from Speech Activated Smart Home Devices

[12] When it comes to using smart home technology data as evidence, concerns surrounding the freedom of speech provided in the First Amendment of the United States Constitution have been raised when the government has sought recorded information/data from smart home technology devices that utilize speech recognition.⁴³ Google Assistant and Amazon Echo are common devices that utilize smart home speakers to work in this manner.⁴⁴ The devices will “awaken” after a user says the “wake

⁴¹ See Kimberley Haas, *Mistrial Declared in Farmington Double Murder; State Police Withheld Evidence*, N.H. UNION LEADER (Oct. 31, 2019), https://www.unionleader.com/news/courts/mistrial-declared-in-farmington-double-murder-state-police-withheld-evidence/article_bb5b6713-e707-5023-a67c-81b14a713bc6.html [https://perma.cc/NF6T-8FAA].

⁴² See *id.*; Chavez, *supra* note 35.

⁴³ See generally Melancon, *supra* note 18, at 317–22.

⁴⁴ See Tim Moynihan, *Alexa and Google Home Record What You Say. But What Happens to That Data?*, WIRED (Dec. 5, 2016, 9:00 AM), <https://www.wired.com/2016/12/alexa-and-google-record-your-voice/> [https://perma.cc/7UD3-5MZD]; *Alexa and Alexa Device*

word,” record what is said, translate that into a command, and then respond to the user’s request.⁴⁵ The user’s account and the manufacturing corporation’s cloud server then store the device’s recorded data.⁴⁶ To put into perspective how often this data is sought, currently, “Amazon says that it receives fewer than 500 search warrants annually for Echo stored data (complying with fewer than half of the orders).”⁴⁷ However, this may increase over time since recent estimates indicate that about fifteen percent of American homes have some sort of smart home device in them.⁴⁸

[13] Contrary to popular belief, even though the devices continuously listen for the wake word, the devices are not always storing information from ambient conversations in the home.⁴⁹ In fact, the device only captures a fraction of a second of data prior to the wake word.⁵⁰ However, since these devices are used for a variety of tasks and will record once the wake word is stated, the devices can potentially store an extensive amount of information.⁵¹ This information includes details of the home’s

FAQs, AMAZON,
<https://www.amazon.com/gp/help/customer/display.html?nodeId=201602230>
[<https://perma.cc/EX2K-TW2H>].

⁴⁵ See, e.g., *Alexa and Alexa Device FAQs*, *supra* note 44.

⁴⁶ See, e.g., *Alexa Terms of Use*, *supra* note 16.

⁴⁷ Browning & Angelo, *supra* note 24.

⁴⁸ Eric Griffith, *The US is the Undisputed Leader in Smart Homes*, PCMag (Mar. 14, 2019), <https://www.pcmag.com/news/367137/the-us-is-the-undisputed-leader-in-smart-homes> [<https://perma.cc/NP3L-DQLG>].

⁴⁹ See, e.g., *Alexa and Alexa Device FAQs*, *supra* note 44.

⁵⁰ *Id.*

⁵¹ Melancon, *supra* note 18, at 305.

activities (e.g., setting an alarm or turning off the lights) along with background sounds and interactions made during requests to the device.⁵²

B. Freedom of Speech Concerns Related to Evidence from Speech Activated Devices

[14] Corporations, such as Amazon, have been reluctant to deliver the data they store from speech activated devices for fear of violating First Amendment protections.⁵³ The First Amendment states that “Congress shall make no law . . . abridging the freedom of speech.”⁵⁴ The Supreme Court has held that this protection covers not only direct speech, but also the following: the right to distribute, the right to receive, the right to read, the freedom of inquiry, the freedom of thought, and the freedom to teach.⁵⁵ Corporations have argued that both a user’s request to a speech activated device and the device’s response should be protected under the First Amendment.⁵⁶ These corporations claim this protection stems from First Amendment protection of not only an individual’s right to speak, but also his or her “right to receive information and ideas.”⁵⁷ Furthermore, it has been argued that corporations will be able to raise First Amendment concerns on behalf of their users, as courts have shown that a challenger does not have to assert an infringement of his own rights if a statute “may cause others not before the court to refrain from constitutionally protected speech or expression.”⁵⁸ As such, corporations may challenge the request

⁵² *See id.*

⁵³ *See* Harrigan, *supra* note 94.

⁵⁴ U.S. CONST. amend. I.

⁵⁵ *See* Griswold v. Connecticut, 381 U.S. 479, 482–83 (1965).

⁵⁶ *See* Harrigan, *supra* note 17, at 94.

⁵⁷ Stanley v. Georgia, 394 U.S. 557, 564 (1969).

⁵⁸ Virginia v. American Booksellers Ass'n, 484 U.S. 383, 393 (1988).

for this data on the basis that providing this information would infringe on their user's rights.⁵⁹

[15] Currently, the Supreme Court has not addressed whether the First Amendment protects either a user's requests to speech activated devices or the device's responses to the user's requests.⁶⁰ However, the Court has determined that "since all speech inherently involves choices of what to say and what to leave unsaid . . . one important manifestation of the principle of free speech is that one who chooses to speak may also decide 'what not to say.'"⁶¹ Additionally, the Court has held that the "First Amendment protection [does not] require a speaker to generate, as an original matter, each item featured in the communication."⁶² Through that reasoning, corporations—such as Amazon—argue that the responses provided by the devices should be protected under the First Amendment, as the response provided a particular selection and arrangement of others' materials and overall decided what to say and what to not say.⁶³

[16] Further, due to potential presence of expressive materials (i.e. book and music purchases) and political materials (i.e. asked political questions) on speech activated device data, it is argued that a "fear of government tracking and censoring one's reading, listening, and viewing" will cause a chilling of the user's queries and speech.⁶⁴ Specifically, Amazon has raised concerns that the user will refrain from asking the device certain questions,

⁵⁹ See Melancon, *supra* note 18, at 323–24.

⁶⁰ See *Zhang v. Baidu.com Inc.*, 10 F. Supp. 3d 433, 436 (S.D.N.Y. 2014) (holding that although the Supreme Court has not settled the matter, search engine results could be speech); see also Harrigan, *supra* note 17, at 94–96.

⁶¹ See *Hurley v. Irish-American Gay, Lesbian, and Bisexual Group of Boston*, 515 U.S. 557, 573 (1995) (quoting *Pacific Gas & Electric Co. v. Public Utilities Comm'n of Cal.*, 475 U.S. 1, 11 (1986) (plurality opinion)).

⁶² See *id.* at 570.

⁶³ See Harrigan, *supra* note 17, at 97.

⁶⁴ *Id.*

ordering sensitive items via the device, or using the device entirely out of that fear.⁶⁵ This in turn would not only chill the users' speech in their own homes, but also Amazon's speech via its devices (as it risks whether users will utilize the devices or not).⁶⁶ Additional arguments have surrounded the *McIntyre v. Ohio Elections Commission* determination that "an author's decision to remain anonymous, like other decisions concerning omissions or additions to the content of a publication, is an aspect of the freedom of speech protected by the First Amendment."⁶⁷ These arguments state that the court allowing the government to access recordings stored in the cloud would go against the user's right to remain anonymous under the First Amendment.⁶⁸

[17] Generally, the Supreme Court has not held that First Amendment concerns are raised when the government, through a lawful subpoena, requests recordings that may contain expressive material.⁶⁹ In the previously described *Bates* case, Amazon offered many of the above arguments for why it should not be required to produce Mr. Bates's Echo data.⁷⁰ However, as the case was dismissed, the Court was not able to decide if these arguments were valid.⁷¹ It is possible that neither the speech activated device's request nor the device's response will be considered speech that is offered First Amendment protection.⁷² Further, looking specifically at seeking the data to prove crimes and domestic violence, it

⁶⁵ *See id.* at 318–19.

⁶⁶ *See id.*

⁶⁷ *McIntyre v. Ohio Elections Comm'n*, 514 U.S. 334, 342 (1995).

⁶⁸ *See Harrigan, supra* note 17, at 95.

⁶⁹ *See id.* at 96.

⁷⁰ *See id.* at 94–99 (describing Amazon's first amendment arguments against using cloud evidence in the dismissed case *Arkansas v. Bates*).

⁷¹ *See Nicole Chavez, supra* note 35; *Hass, supra* note 41.

⁷² *See Harrigan, supra* note 17, at 94–95.

must be noted that the sought smart home technology data will be content-neutral.⁷³ As such, the government will be requesting *all* the content collected and not exclusively the political questions asked, the expressive materials sought, or the information for how the search results are expressively limited.⁷⁴ Also, the request will be limited to the time surrounding the potential abuse or crime.⁷⁵ Overall, the request is not to regulate speech based on its content, to limit how devices deliver their responses, nor to punish users for the requests they make to the device.⁷⁶ Furthermore, many of these devices, such as Amazon Echo, will provide access to the stored recorded data via the user's account and allow the information to be deleted.⁷⁷ So, any resulting chilling effect would be mitigated by the user's awareness that they can delete the data upon its creation and prevent the existence of any long term stored data.⁷⁸

[18] For the above reasons, it is not known how much of an obstacle First Amendment protection is to the admissibility of smart home technology data. It is possible that the First Amendment will not bar the admissibility at all. However, if it does, the obstacle will be specific to certain types of

⁷³ See Melancon, *supra* note 18, at 303 (detailing how Arkansas Police Department asked for all the information from an Alexa device around the time frame of a murder).

⁷⁴ See *id.* at 320–21.

⁷⁵ See *id.* at 303 (describing how Arkansas Police Department only asked for the 48-hour period around which Collin's death occurred).

⁷⁶ See *Reed v. Town of Gilbert*, 576 U.S. 155, 162–64 (2015) (describing how content-based laws will only be constitutional if narrowly tailored to a compelling state interest and are as).

⁷⁷ *Amazon Help and Customer Service View Your Dialog History*, AMAZON, https://www.amazon.com/gp/help/customer/display.html/ref=help_search_17?ie=UTF8&nodeId=201602040&qid=1513968463&sr=1-7. [<https://perma.cc/KT4C-J8VX>].

⁷⁸ See *id.*

smart home technology and possible to overcome if the government can meet the necessary standard of review.⁷⁹

IV. ADDRESSING FOURTH AMENDMENT CONCERNS ON ADMITTING SMART HOME TECHNOLOGY EVIDENCE

[19] The Fourth Amendment states that “the right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated.”⁸⁰ In *Katz v. United States*, the Supreme Court established “that ‘the Fourth Amendment protects people, not places,’ and expanded [the] conception of the Amendment to protect certain expectations of privacy as well.”⁸¹ As such, what a person “seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.”⁸² Nevertheless, the Court also noted that what a “person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection.”⁸³ Since the *Katz* decision, the Court has further concluded that Fourth Amendment protections could be barred by either the third-party doctrine or the existence of exigent circumstances.⁸⁴

[20] Exigent circumstances exist when there are special circumstances that justify the invasion of privacy.⁸⁵ The third-party doctrine applies when

⁷⁹ See Harrigan, *supra* note 17, at 95 (showing how the exact level of standard of review necessary is yet to be determined).

⁸⁰ U.S. CONST. amend. IV.

⁸¹ *Carpenter v. United States*, 138 S. Ct. 2206, 2213 (2018) (referring to *Katz v. United States*, 389 U.S. 347, 351 (1967)).

⁸² *Katz v. United States*, 389 U.S. 347, 351 (1967).

⁸³ *See id.*

⁸⁴ *See, e.g., Smith v. Maryland*, 442 U.S. 735, 744 (1979); *Kentucky v. King*, 563 U.S. 452, 462 (2011).

⁸⁵ *See, e.g., Kentucky v. King*, 563 U.S. 452, 462 (2011) (holding that exigent circumstance existed and allowed for warrantless entry to prevent the destruction of evidence); *Schmerber v. California*, 384 U.S. 757, 770–71 (1966) (finding that exigent

the information sought is possessed or known by third parties, causing an elimination of privacy.⁸⁶ Some supporters of the third-party doctrine believe that this elimination of privacy is due to a lack of reasonable expectation of privacy in the information, while others believe that the voluntary consent to the third parties' possession or knowledge eliminates the privacy.⁸⁷

[21] While this paper primarily focuses on the expectation of privacy approach, the consent approach will also allow the doctrine to apply to smart home technology data, as consent will have been given when smart home technology users agree to the Terms and Conditions of the devices.⁸⁸ As either exigent circumstances or the third party doctrine can apply to smart home technology data, the data can be obtained without the need of a warrant to help prove domestic violence occurrences.

A. The Third-Party Doctrine in Relation to Smart Home Technology Data

[22] Under the third-party doctrine, the government is able to access information without a warrant when the information has previously been voluntarily given to a third-party.⁸⁹ In regard to smart home technology, the contract between the manufacturer and the user is likely sufficient to

circumstance of preventing destruction of evidence justified warrantless search); *Brigham City, Utah v. Stuart*, 547 U.S. 398, 403 (2006) (holding that an exigent circumstance “obviating the requirement of a warrant is the need to assist persons who are seriously injured or threatened with such injury”); *Michigan v. Fisher*, 558 U.S. 45, 48 (2009) (finding an exigent circumstance existed when police observed a fight occurring in the home and proceeded to enter the home).

⁸⁶ See Melancon, *supra* note 18, at 314–15.

⁸⁷ See *id.*

⁸⁸ See, e.g., *Alexa Terms of Use*, *supra* note 16.

⁸⁹ See, e.g., *Smith v. Maryland*, 442 U.S. 735, 744 (1979).

establish that the information was voluntarily given to a third-party.⁹⁰ Furthermore, there is no reasonable expectation of privacy in the data collected by smart home technology that could lead to a greater expectation of protection from the Fourth Amendment.⁹¹ Therefore, Fourth Amendment protection should cease when the user agrees to the Terms and Conditions of the technology and continues to use it in their home, as this removes any reasonable expectation of privacy.⁹² Also, further protection provided from the Fourth Amendment is not available, because courts should determine that the owner of the technology gave consent to the corporations to store the data.⁹³

[23] Rejecting an expectation of privacy when one uses smart home technology would be consistent with the Supreme Court's precedent.⁹⁴ For example, in *Smith v. Maryland*, the Court rejected the argument that there is an expectation of privacy in numbers people dial on the phone, because "[t]elephone users, in sum, typically know that they must convey numerical information to the phone company; that the phone company has facilities for recording this information; and that the phone company does in fact record this information for a variety of legitimate business purposes."⁹⁵ The Court also noted that "even if petitioner did harbor some subjective expectation that the phone numbers he dialed would remain private, this expectation is not 'one that society is prepared to recognize as

⁹⁰ See Christopher B. Burket, Note, "*I Call Alexa to the Stand*": *The Privacy Implications of Anthropomorphizing Virtual Assistants Accompanying Smart-Home Technology*, 20 VAND. J. ENT. & TECH. L. 1181, 1205 (2018).

⁹¹ See Melancon, *supra* note 18.

⁹² See, e.g., *Alexa Terms of Use*, *supra* note 16.

⁹³ See Melancon, *supra* note 18, at 312 (stating how the protection of the Fourth Amendment is not available if it is determined the Alexa owner gave consent to Amazon to store the data).

⁹⁴ See, e.g., *Smith v. Maryland*, 442 U.S. 735, 743 (1979).

⁹⁵ *Id.*

‘reasonable.’”⁹⁶ Further, the “Court consistently has held that a person has no legitimate expectation of privacy in information he voluntarily turns over to third parties.”⁹⁷

[24] Likewise, smart home technology users know that after engaging with their device that it conveys information to manufacturing corporations.⁹⁸ Like the phone users in *Smith*, smart home technology users also know there are facilities for recording the information and that the information will be stored in the cloud.⁹⁹ Furthermore, this will be affected by how the user is aware that the corporation may share the data, as this is described in the Terms of Use agreement.¹⁰⁰ As such, it would be consistent for the Court to determine that there is no expectation of privacy in the data stored by smart home technology.

[25] While it could be argued that the recent decision of *Carpenter v. United States* could lead to a decline in the applicability of the third-party doctrine with modern technology, the case of smart home technology is different than the technology the Court applied their decision to in *Carpenter*.¹⁰¹ Specifically in *Carpenter*, the Court declined to extend the third-party doctrine to cell-site location data.¹⁰² In effect, this requires

⁹⁶ *See id.* (quoting *Katz v. United States*, 389 U.S. 347, 361 (1967)).

⁹⁷ *See id.* at 743–44 (citing *United States v. Miller*, 425 U.S. 435, 442–44 (1976); *Couch v. United States*, 409 U.S. 322, 335–36 (1973); *United States v. White*, 401 U.S. 745, 752 (1971) (plurality opinion); *Hoffa v. United States*, 385 U.S. 293, 302 (1966); *Lopez v. United States*, 373 U.S. 427 (1963)).

⁹⁸ *See, e.g., Alexa Terms of Use, supra* note 16.

⁹⁹ *See id.*

¹⁰⁰ *See id.*

¹⁰¹ *See Carpenter v. United States*, 138 S. Ct. 2206, 2210 (2018).

¹⁰² *See id.*

the Government to obtain a warrant before searching those records.¹⁰³ When coming to their conclusion, the Court determined that the third-party doctrine's underlying rationale of voluntary exposure did not apply to the case at hand, because carrying a cell phone is now “indispensable to participation in modern society” and no longer a meaningful choice.¹⁰⁴ Therefore, the individual did not voluntarily release the information.¹⁰⁵

[26] In the case of smart home technology, there are several reasons why the determination could be different than that of the cell-site location data in *Carpenter*.¹⁰⁶ First, smart home technology is not “indispensable to participation in modern society,” as only fifteen percent of American homes have smart home technology.¹⁰⁷ Also, smart home technology is designed to make life easier, but one can still function without the technology (for example, one can use a computer to make purchases, a switch to turn off the lights, a manual vacuum cleaner, and so on).¹⁰⁸ Furthermore, when one uses smart home technology, the user signs a Terms and Condition Agreement that specifically tells them that the usage data will be stored—this allows the transfer of the information to be done voluntarily and without force.¹⁰⁹ As the technology is not “indispensable to participation in modern society”

¹⁰³ See *id.* at 2221.

¹⁰⁴ See *id.* at 2220.

¹⁰⁵ See *id.*

¹⁰⁶ See *Carpenter*, 238 S. Ct. at 2220.

¹⁰⁷ Compare Griffith, *supra* note 48 (showing how fifteen percent of the United States population own some kind of smart home technology), with *Mobile Fact Sheet*, PEW RES. CTR. (June 12, 2019), <https://www.pewresearch.org/internet/fact-sheet/mobile/> [https://perma.cc/S5ZJ-4N9G] (showing how ninety-six percent of Americans own a cellphone).

¹⁰⁸ See Ryan Shanks and Francis Hintermann, *Designing Smart-Home Products That People Will Actually Use*, HARV. BUS. REV. (July 11, 2019), <https://hbr.org/2019/07/designing-smart-home-products-that-people-will-actually-use> [https://perma.cc/WE7Z-RUWJ].

¹⁰⁹ See, e.g., *Alexa Terms of Use*, *supra* note 16.

and the sharing of the data is done voluntarily, *Carpenter v. United States* likely will not limit the applicability of the third-party doctrine to smart home technology data.

B. Existence of Exigent Circumstances with Smart Home Technology Data

[27] Regardless of application of the third-party doctrine to smart home technology data, Fourth Amendment protection likely is still unavailable to the data due to the existence of exigent circumstances.¹¹⁰ Generally, exigent circumstances will exist if there are special circumstances that justify the invasion of privacy and make the search justifiably reasonable.¹¹¹ In order to find that exigent circumstances allow for the search, a balance will be conducted between the government's ability to conduct a valid search and seizure with Fourth Amendment protection and the public's expectation of privacy.¹¹² The need to prevent the imminent destruction of evidence is a common example of exigent circumstances that allow a warrantless search.¹¹³ Over the years, this has included “‘now or never’ situation[s],” such as when data can be the “target of an imminent remote-wipe attempt.”¹¹⁴ Another example of when exigent circumstances can exist

¹¹⁰ See Melancon, *supra* note 18, at 315–17.

¹¹¹ See, e.g., *Kentucky v. King*, 563 U.S. 452, 462 (2011) (holding that exigent circumstance existed and allowed for warrantless entry to prevent the destruction of evidence); *Schmerber v. California*, 384 U.S. 757, 770–71 (1966) (finding that exigent circumstance of preventing destruction of evidence justified warrantless search); *Brigham City v. Stuart*, 547 U.S. 398, 403 (2006) (holding that an exigent circumstance “obviating the requirement of a warrant is the need to assist persons who are seriously injured or threatened with such injury”); *Michigan v. Fisher*, 558 U.S. 45, 48 (2009) (finding an exigent circumstance existed when police observed a fight occurring in the home and proceeded to enter the home).

¹¹² See *Riley v. California*, 573 U.S. 373, 385 (2014).

¹¹³ See *King*, 563 U.S. at 460.

¹¹⁴ *Riley*, 573 U.S. at 391 (quoting *Missouri v. McNeely*, 569 U.S. 141, 153 (2013)).

include times when police are needed “to render emergency assistance to an injured occupant or to protect an occupant from imminent injury.”¹¹⁵

[28] While there are several reasons why the exigent circumstances exception to a warrantless search could apply to smart home technology data,¹¹⁶ a main reason is that most smart home technology data is digital and therefore could be easily destroyed.¹¹⁷ For example, the owner of an Amazon Echo can delete either individual requests or the entire history of requests to their device.¹¹⁸ In fact, unlike other technological devices that need the device itself to delete the evidence, Amazon Echo data can be destroyed remotely from any computer by logging into the user's Amazon account, thus putting the data at a greater risk of destruction than other digital evidence.¹¹⁹ Therefore, exigent circumstances would likely permit a warrantless search of smart home technology data.

[29] In summation, both the third-party doctrine and the existence of exigent circumstances compromise the applicability of the Fourth Amendment protection to smart home technology data. Therefore, the Fourth Amendment is unlikely to bar the admissibility of the data in court to prove domestic violence cases.¹²⁰

¹¹⁵ *King*, 563 U.S. at 460.

¹¹⁶ *See Melancon, supra* note 18, at 315–17 (describing how exigent circumstances exception to a warrantless search could apply to smart home technology in several ways, including: assisting law enforcement investigations where individuals are threatened with imminent injury).

¹¹⁷ *See id.* at 316.

¹¹⁸ *See Amazon Help and Customer Service View Your Dialog History, supra* note 79.

¹¹⁹ *See Melancon, supra* note 18, at 316.

¹²⁰ *See id.* at 310.

V. ADDRESSING FIFTH AMENDMENT CONCERNS ON ADMITTING SMART HOME TECHNOLOGY EVIDENCE DURING CRIMINAL DOMESTIC VIOLENCE CASES

[30] In relevant part, the Fifth Amendment states that “[n]o person . . . shall be compelled in any criminal case to be a witness against himself”¹²¹ As such, the Fifth Amendment protects criminal defendants from self-incrimination.¹²² Self-incrimination protection requires the communication be compelled, testimonial,¹²³ and incriminating.¹²⁴ Therefore, evidence that is not from the defendant nor compelled, testimonial, and incriminating will not fall under the protection.¹²⁵

[31] When it comes to smart home technology, it is highly unlikely that the data will be able to meet those requirements. Though the information may be incriminating, it will not likely be collected directly from the defendant.¹²⁶ When collecting evidence, the government will gather data by either first-hand or second-hand collection.¹²⁷ First-hand collection occurs when the government receives the evidence from individuals firsthand. It includes evidence such as direct statements and many traditional forms of police surveillance (including evidence found from observing and following

¹²¹ U.S. CONST. amend. V.

¹²² *See Doe v. United States*, 487 U.S. 201, 210–11 (1988).

¹²³ *See id.* at 210 (stating how to be testimonial for Fifth Amendment purposes an accused’s oral or written communication or act must “explicitly or implicitly, relate a factual assertion or disclose information”).

¹²⁴ *Id.* at 207.

¹²⁵ *See id.* at 203.

¹²⁶ *See* Paul Breer, *When the Television Listens: Fourth Amendment Protection is Not Keeping Up with New Technology*, 85 UMKC L. REV. 255, 264 (2016) (detailing how the government collects data).

¹²⁷ *See id.*

suspects in person and from searching homes and property).¹²⁸ Whereas, second-hand collection occurs “when the government asks a private party, such as a person who witnessed a suspect do or say something to a machine who has recorded the actions or speech of a suspect in some way, for information concerning an individual.”¹²⁹ Second-hand data can come from corporations (such as Facebook, Google, and Apple) and can include the corporation’s computer stored data.¹³⁰ Therefore, it is highly likely that smart home technology data will be considered coming from second-hand collection.¹³¹ Since the information would not be compelled from the defendant, the government is not forcing the defendant to self-incriminate.

[32] Alternatively, even if it were determined that the collection was first-hand and the defendant was required to provide the data, it is unlikely that it would be considered to be forced self-incrimination.¹³² In *Fisher v. United States*, the Supreme Court determined that “a person may be required to produce specific documents even though they contain incriminating assertions of fact or belief because the creation of those documents was not ‘compelled’ within the meaning of the privilege.”¹³³ As such, a person can invoke their Fifth Amendment rights against the production of documents only where the very act of producing the documents is incriminating in itself.¹³⁴ It is for this reason that suspects can

¹²⁸ *Id.*

¹²⁹ *Id.*

¹³⁰ *See id.* (describing how this data can be “relied on with a high degree of certainty and be combined with other data points to show a ‘highly detailed portrait of a suspect’s activities’”).

¹³¹ *See id.*

¹³² *See generally* *Doe v. United States*, 487 U.S. 201, 210–211 (1988) (stating how some revealed incriminating acts are not within the Fifth Amendment privilege).

¹³³ *United States v. Hubbell*, 530 U.S. 27, 35–36 (2000); *see Fisher v. United States*, 425 U.S. 391, 397 (1976).

¹³⁴ *See Hubbell*, 530 U.S. at 37, 44–45.

be required to give a handwriting sample or stand in a lineup, because these kinds of acts do not force the suspect to communicate any knowledge he might have or provide testimonial evidence against himself.¹³⁵ Rather, in order qualify as self-incrimination, “an accused's communication [or act] must itself, explicitly or implicitly, [must] relate a factual assertion or disclose information.”¹³⁶ It is “[o]nly then [that] a person [is] compelled to be a 'witness' against himself.”¹³⁷

[33] As having smart home technology data is not incriminating in itself, requiring a defendant to produce the data does not itself relate a factual assertion. Additionally, as the data was previously created, no one compelled the information contained in the data into being created.¹³⁸ As such, when the government seeks information from smart home technology, it is unlikely to be viewed as compelling the defendant to testify against themselves, even if the resulting evidence is incriminating. Therefore, the Fifth Amendment is unlikely to bar the admissibility of smart home technology data as evidence in court.

VI. ADDRESSING SIXTH AMENDMENT CONCERNS ON ADMITTING SMART HOME TECHNOLOGY EVIDENCE AGAINST THE ACCUSED

[34] The Confrontation Clause of the Sixth Amendment states that “in all criminal prosecutions, the accused shall enjoy the right . . . to be confronted with the witnesses against him.”¹³⁹ There are two main limitations to concerns surrounding the Sixth Amendment Confrontation Clause effect on the admissibility of smart home technology in domestic violence cases. First, the right is only given in criminal prosecutions; therefore, the right

¹³⁵ See *Gilbert v. California*, 388 U.S. 263, 266–67 (1967) (finding a handwriting exemplar does not violate Fifth Amendment protection); *United States v. Wade*, 388 U.S. 218, 223 (1967) (finding a police lineup does not violate Fifth Amendment protection).

¹³⁶ *Doe v. United States*, 487 U.S. 201, 210 (1988).

¹³⁷ *Id.*

¹³⁸ See *United States v. Hubbell*, 530 U.S. 27, 37, 44–45 (2000).

¹³⁹ U.S. Const. amend. VI.

will not apply in domestic violence civil cases.¹⁴⁰ Second, the concern's validity will depend on answering the fundamental question of who is the "witness" providing the evidence: Is it the person who set up the device, everyone on whom the device has collected information, the manufacturer, the service provider that collects and analyzes the data, or the company that provides the algorithms used to interpret the collected data? Regardless, it is unlikely that there will be a Confrontation Clause violation.

[35] Because the Confrontation Clause does not provide the accused the right to confront *themselves*, there is no Confrontation Clause violation if the accused themselves supplied the statement.¹⁴¹ On the other hand, even if someone else is considered the "witness" at hand, there is not likely going to be a Confrontation Clause violation when using smart home technology to prove domestic violence.¹⁴² When determining if the Confrontation Clause protection attaches, the Court will be led by its decision in *Crawford v. Washington*. In *Crawford v. Washington*, the Supreme Court analyzed the Confrontation Clause and distinguished between testimonial evidence and non-testimonial evidence.¹⁴³ The Court held that testimonial evidence required the opportunity to cross-examine the witness giving the evidence.¹⁴⁴ While the Supreme Court in that case did not provide an exact

¹⁴⁰ *See id.*

¹⁴¹ *See id.* (giving the defendant the right to confront witnesses against them).

¹⁴² *See Crawford v. Washington*, 541 U.S. 36, 61 (2004) (describing the goal of the Confrontation Clause as ensuring the reliability of evidence through cross-examination).

¹⁴³ *See id.* at 68 ("Where nontestimonial hearsay is at issue, it is wholly consistent with the Framers' design to afford the States flexibility in their development of hearsay law, as would an approach that exempted such statements from Confrontation Clause scrutiny altogether. Where testimonial evidence is at issue, however, the Sixth Amendment demands what the common law required: unavailability and a prior opportunity for cross-examination.").

¹⁴⁴ *See id.* at 59–61; *see also Davis v. Washington*, 547 U.S. 813, 822 (2006) (describing how testimony statements require that either the witness who made the statement testify at trial in order to be cross examined or the defense had a previous opportunity and similar motive to cross examine the witness).

definition of testimonial evidence,¹⁴⁵ the Court did provide further guidance in the case of *Davis v. Washington*.¹⁴⁶ In *Davis*, the Court established the primary purpose test, which decides if a witness's statement is testimonial in nature.¹⁴⁷ Under this test, if the determined primary purpose is to provide evidence for later investigation or for use at trial, it is testimonial evidence.¹⁴⁸ However, if the primary purpose is to meet an ongoing emergency or seek help, it is non-testimonial evidence.¹⁴⁹

[38] Specifically, in the context of using smart home technology data to prove domestic violence, the primary purpose of the evidence is not to aid in the criminal investigation.¹⁵⁰ Firstly, if the device is being used to cause domestic abuse, the evidence it creates was certainly not created to aid in a later investigation against the abuser.¹⁵¹ For example, if the abuser uses an Amazon Echo device to set an alarm every day at 2 a.m., the abuser made the statement to further the abuse, not to further any kind of investigation. Secondly, the evidence from the device is likely some form of recording of

¹⁴⁵ See *Crawford*, 541 U.S. at 68 (stating the Court “leave[s] for another day any effort to spell out a comprehensive definition of 'testimonial,'” but also stating that “[w]hatever else the term covers, it applies at a minimum to prior testimony at a preliminary hearing, before a grand jury, or at a former trial; and to police interrogations”).

¹⁴⁶ See *Davis*, 547 U.S. at 822.

¹⁴⁷ See *id.*

¹⁴⁸ See *id.* (explaining that statements “are testimonial when the circumstances objectively indicate that there is no . . . ongoing emergency, and that the primary purpose of the interrogation is to establish or prove past events potentially relevant to later criminal prosecution”).

¹⁴⁹ See *id.* at 813 (stating that “[s]tatements are nontestimonial when made in the course of police interrogation under circumstances objectively indicating that the primary purpose of the interrogation is to enable police assistance to meet an ongoing emergency”).

¹⁵⁰ See *id.*

¹⁵¹ See *Davis*, 547 U.S. at 815 (stating how testimonial statements' primary purpose goes to aid in later prosecution).

the actual abuse happening. Therefore, it should be determined that the evidence was created in an ongoing emergency, rather than made to detail past events to help investigations.¹⁵²

[39] As evidence obtained from smart home technology data is unlikely to be considered testimonial when offered to prove domestic violence, there is no confrontation clause issue.¹⁵³ As such, the utilization of this evidence is constitutionally sound in regard to the Sixth Amendment.

VII. CONCLUSION

[40] Smart home technology is designed to be useful and respond to the needs of the users.¹⁵⁴ While there are many advantages to smart home technology, the technology does come with the major risk that domestic abusers can now use the devices to abuse their victims in a brand new way.¹⁵⁵ However, this technology also has the potential to simultaneously provide more options for proving that domestic abuse has occurred.¹⁵⁶ Domestic violence is incredibly difficult to prove in a criminal prosecution, because oftentimes physical evidence is lacking and testifying witnesses are limited. Therefore, data obtained from smart home technology could greatly assist in proving domestic violence cases and protecting victims.¹⁵⁷

[41] Though the Supreme Court has not yet addressed the admissibility of smart home technology data, current constitutional law and doctrines indicate that it will be admissible. First Amendment considerations would

¹⁵² See *id.* (distinguishing between testimonial statements and non-testimonial statements).

¹⁵³ See *Crawford v. Washington*, 541 U.S. 36, 59–61, 68 (2004) (describing how non-testimonial evidence are not subjected to the Confrontation Clause).

¹⁵⁴ See *Rouse*, *supra* note 3.

¹⁵⁵ See *Cruse*, *supra* note 2.

¹⁵⁶ See *id.* at 35; see, e.g., *Alexa Terms of Use*, *supra* note 16.

¹⁵⁷ See *Brooks*, *supra* note 11.

apply to smart home technology data involving speech. As the request for the data will be content-neutral and limited to the time surrounding the potential abuse, it is unlikely that the government's request of the data would be considered an attempt at regulating speech.¹⁵⁸ Users know they have access to this data and can control its existence; this allows for the government to request this information without creating a large chilling effect on the speech of those who use smart home technology.¹⁵⁹

[42] As such, it is possible that the First Amendment will not bar the admissibility of this evidence. Any First Amendment obstacles will be minor in nature, specific to certain types of smart home technology, and able to be overcome by meeting the necessary standard of review.¹⁶⁰ The Fourth Amendment will also not bar the admissibility of smart home technology data, due to the third-party doctrine applying to the data and the existence of exigent circumstances.¹⁶¹ Additionally, requesting this data does not compel a defendant to testify against themselves, so the Fifth Amendment is not going to bar the admissibility of the data.¹⁶² Lastly, smart home technology data is not testimonial in nature, thus preventing the Sixth Amendment's Confrontation Clause from barring the admissibility of the data.¹⁶³

¹⁵⁸ See Melancon, *supra* note 18, at 303.

¹⁵⁹ See, e.g., *Amazon Help and Customer Service View your Dialog History*, *supra* note 79.

¹⁶⁰ See Harrigan, *supra* note 17.

¹⁶¹ See Melancon, *supra* note 18, at 315–316.

¹⁶² See generally *Doe v. United States*, 487 U.S. 201, 210–11 (1988) (stating how some revealed incriminating acts are not within the Fifth Amendment privilege).

¹⁶³ See generally *Crawford v. Washington*, 541 U.S. 36, 59–61, 68 (2004) (describing how non-testimonial evidence are not subjected to the Confirmation Clause).

[43] Therefore, smart home technology will prove to be an effective and constitutionally sound tool for proving domestic violence and enhancing protections for survivors of domestic violence.