Droning On and On: A Tort Approach to Regulating Hobbyist Drones

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I. INTRODUCTION

Imagine being inside of your home and noticing a small device hovering outside of your window. You spot a camera attached to the floating machine, realizing that it is peering into your personal space and videoing you inside your home. A frenzy of thoughts and questions come to mind as you watch this device that is watching you. What is that thing? How long has it been there? Has this happened before without your knowledge? The device you see is an unmanned aircraft system ("UAS")—more commonly known as a drone[1]—equipped with a high-definition camera and a microphone to record the private activities that are occurring inside the home. The situation described above is one that many people have already been in, or will find themselves in, as drones enter the hands of private citizens.

UAS technology has the capacity to revolutionize many aspects of American society.[2] Despite the potential advantages of drone technology, their incorporation into the airspace creates substantial concerns that trouble both citizens and policymakers alike. Private, hobbyist drone use is expected to rapidly increase as the equipment becomes more accessible and affordable.[3] The drone industry is expanding exponentially, anticipating consumers to

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1. The terms drone and UAS will be used interchangeably throughout this Note. *See* FED. AVIATION ADMIN., U.S. DEP'T OF TRANSP., INTEGRATION OF CIVIL UNMANNED AIRCRAFT SYSTEMS (UAS) IN THE NATIONAL AIRSPACE SYSTEM (NAS) ROADMAP 7 (2013) [hereinafter ROADMAP] ("[T]he term UAS is used to emphasize the fact that separate system components are required to support airborne operations without a pilot onboard the aircraft."). Unmanned aircraft systems consist of three elements: unmanned aircraft, control station, and data link. *Id.* at 8. Some popular literature will use the acronyms UAS or UAV (Unmanned Aerial Vehicle), but technically UAV represents only the drone itself, while UAS refers to all the components that enable the drone to fly remotely. *Id.* at 7–8.

2. The use of UAS technology has endless potential applications in areas such as public safety and commercial enterprises; however, this Note focuses primarily on hobbyist or recreational use of drones.

3. *See* WELLS C. BENNETT, CIVILIAN DRONES, PRIVACY, AND THE FEDERAL-STATE BALANCE 3 (2014) ("As unmanned flight technology matures and grows ever cheaper, it will find its way into more private hands.").

spend more than 100 million dollars on drones in 2015.[4] Today, many advanced drones are commercially available in local hobby stores and on the Internet for less than a few hundred dollars.[5] These devices have features that allow the drone to maneuver like a miniature helicopter, and can be controlled through the operator's smartphone or mobile device.[6] Additionally, there are drones that are the size of a bug or a small bird that are beginning to catch the attention of hobbyist drone operators.[7] Drones have the ability to stay airborne for extended periods of time and can be outfitted with specialized surveillance technology that can violate a person's privacy from extremely high altitudes.[8] As drones become more affordable, the apprehension that hobbyists may use their personal drones in a way that invades the privacy of others becomes more alarming.

Given the attention and controversy that surrounds the increasing use of the technology, it is unsurprising that various policymakers have entered the arena of drone regulation. Drone availability is granting private citizens unprecedented access to low altitude airspace, while laws that were designed to address airplanes and helicopters cannot effectively address issues that stem from

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4. Tom Risen, *Drone Market Grows at CES 2015*, U.S. NEWS (Jan. 8, 2015, 5:40 PM), http://www.usnews.com/news/articles/2015/01/08/faa-touts-growing-drone-market-at-ces-2015. It is estimated that worldwide expenditures and drone related research could reach up to $89.1 billion over the next decade. *Id.* at 5. For an overview on what drone industry representatives expect as drones enter the markets, see DARRYL JENKINS & BIJAN VASIGH, ASS'N FOR UNMANNED VEHICLE SYS. INT'L, THE ECONOMIC IMPACT OF UNMANNED AIRCRAFT SYSTEMS INTEGRATION IN THE UNITED STATES (2013), http://robohub.org/_uploads/AUVSI_New_Economic_Report_2013_Full.pdf. Industry leaders hope to employee up to 100,000 people by 2025. *Id.* at 3.

5. Troy A. Rule, *Airspace in an Age of Drones*, 95 B.U. L. REV. 155, 157 (2015).

6. *Id.* at 157–60.

7. The Defense Advanced Research Projects Agency is currently creating a drone that is the size of a hummingbird that can fly up to eleven miles per hour for eight minutes. JAY STANLEY & CATHERINE CRUMP, AM. CIVIL LIBERTIES UNION, PROTECTING PRIVACY FROM AERIAL SURVEILLANCE: RECOMMENDATIONS FOR GOVERNMENT USE OF DRONE AIRCRAFT 3 (2011), https://www.aclu.org/files/assets/protectingprivacyfromaerialsurveillance.pdf [hereinafter ACLU REPORT].

8. The backpack craft, which is most used by hobbyist operators, can reach altitudes of up to 14,000 feet and stay in the air for up to 110 minutes. *Id.*

drone operations.[9] In 2012, Congress passed a law that requires the Federal Aviation Administration ("FAA") to develop a plan to safely integrate drones into the national airspace by September 2015,[10] which the FAA failed to meet.[11] The FAA is far behind the deadlines created by Congress and the regulations that govern the use of public,[12] commercial,[13] and private drones are in a perpetual state of fluctuation.[14] Federal lawmakers have proposed numerous bills aimed at filling gaps left in current federal drone legislation.[15] Likewise, state lawmakers are attempting to address the privacy concerns by enacting legislation aimed at preventing hobbyist and commercial drone operators from using their drones in an offensive manner.[16]

This Note argues that legislative attempts to regulate hobbyist and recreational use of drones are unnecessary because existing common law tort claims of general applicability can effectively deter invasions of privacy by recreational drone operators. "[T]he common law is not a static but a dynamic and growing thing. Its rules arise from the application of reason to the changing conditions of society."[17] The tort claims of aerial trespass[18] and intru-

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9. Rule, *supra* note 5, at 169–70.

10. FAA Modernization and Reform Act of 2012, Pub. L. No. 112-95 § 332, 126 Stat. 11, 73 (2012).

11. Keith Wagstaff, *FAA Misses Deadline for Creating Drone Regulations*, NBC NEWS (Oct. 1, 2015, 3:29 PM), http://www.nbcnews.com/tech/innovation/faa-misses-deadline-creating-drone-regulations-n437016.

12. This Note will not address the use of drone technology by government entities or any potential violations of Fourth Amendment rights. For information on the threat posed by law enforcement use of drones, see Robert Molko, *THE DRONES ARE COMING! Will the Fourth Amendment Stop Their Threat to Our Privacy?*, 78 BROOK. L. REV. 1279 (2013).

13. This Note will briefly touch on the subject of commercial drone use in an effort to explain the different considerations, as well as the similarities between drones that are used for recreational purposes and those that are used in a commercial context.

14. OFFICE OF THE INSPECTOR GEN., U.S. DEP'T OF TRANSP., AUDIT REPORT No. AV-2014-061, FAA FACES SIGNIFICANT BARRIERS TO SAFELY INTEGRATE UNMANNED AIRCRAFT SYSTEMS INTO THE NATIONAL AIRSPACE SYSTEM (2014) [hereinafter AUDIT REPORT].

15. *See, e.g.*, Drone Aircraft Privacy and Transparency Act of 2013, H.R. 1262, 113th Cong. (2013).

16. *See, e.g.*, TENN. CODE ANN. § 70-4-302(a)(6) (2012 & Supp. 2015).

17. Roach v. Harper, 105 S.E.2d 564, 568 (W. Va. 1958).

sion upon seclusion[19] are applicable to situations in which a private individual uses a drone in a way that interferes with another's private property or offends their personal space. As drone technology continues to develop and evolve, statutory solutions are likely to become outdated and obsolete, while tort claims of broad-ranging applicability are flexible enough to adapt to unpredictable technological advances. State legislation faces many challenges that are not implicated by addressing violations of privacy with common law tort claims. The legislation runs against the public interest, as it might have a chilling effect on the private experimentation with the technology. State legislation also runs the risk of being preempted by the enactment of federal laws that govern private drone use. Additionally, it is unclear how broadly the FAA regulations will reach once they are finalized.

Part II of this Note explores the background and current development of drone technology, focusing on drones used for recreational purposes by private parties. Part III examines the current legal landscape of drone integration into American society, addressing both federal and state legislative and regulatory efforts. Part IV discusses the common law torts of aerial trespass and intrusion upon seclusion, and analyzes how, although currently overlooked in the drone debate, they can adapt to provide remedies that would address unreasonable intrusions by hobbyist drones. Part V concludes this Note by offering brief closing remarks.

II. UNMANNED AIRCRAFT SYSTEMS

This Part discusses the historical development of UAS technology. It highlights the evolution of drone technology from a military tool to a technology that has limitless domestic applications. This Part also explains the current use of drone technology and the possible applications for UAS in the future as the equipment continues to become more affordable. Finally, this Part examines the privacy implications as drones become integrated into the national airspace.

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18. RESTATEMENT (SECOND) OF TORTS § 159(2) (1965).
19. RESTATEMENT (SECOND) OF TORTS § 652B (1977).

A. History and Development of UAS Technology

In theory, the history of UAS is as long as the history of aviation itself.[20] Drone technology has traditionally been used as a military tool.[21] The evolution of drone technology is marked by stages of rapid expansion followed by episodes of inactivity.[22] This trend is due in large part to the fact that research and development is sparked by a reaction to a specific problem that arises during a specific conflict.[23] In response to the close combat missions fought in World War I, technologists began to develop the first operational remote piloted vehicle.[24] As the conflict between

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20. Early research in unmanned aircraft provided a framework that would be used by early developers of manned aircraft, such as the Wright brothers, who first achieved sustained flight in 1903. *Eyes in the Sky: The Domestic Use of Unmanned Aerial Systems: Hearing Before the Subcomm. on Crime, Terrorism, Homeland Security, & Investigations of the Comm. on the Judiciary H.R.*, 113th Cong. 2 (2013) (statement of Christopher R. Calabrese, Legislative Counsel, American Civil Liberties Union); *see also* John Villasenor, *Observations from Above: Unmanned Aircraft Systems and Privacy*, 36 HARV. J. L. & PUB. POL'Y 462 (2013).

21. The Army became involved in unmanned flight research as early as 1918. *See* JOHN DAVID BLOM, UNMANNED AERIAL SYSTEMS: A HISTORICAL PERSPECTIVE, COMBAT STUDIES INST. PRESS 1 (2010), http://usacac.army.mil/cac2/cgsc/carl/download/csipubs/OP37.pdf; *see also, e.g.*, Neville Parton, *Introduction*, *in* ROYAL AIR FORCE DIRECTORATE OF DEF. STUDIES, UAVS: THE WIDER CONTEXT 4 (Owen Barnes ed., 2011) ("[T]he first flying bomb type device was developed during the First World War."); John Sifton, *A Brief History of Drones*, THE NATION (Feb. 7, 2012), www.thenation.com/article/166124/brief-history-drones# ("Air warfare has been with us for a hundred years, since the Italian invasion of Libya in 1911, and the development of drones was in the works from the start. The reason is simple: even with all the advantages offered by air power, humans still needed to strap themselves into the devices and fly them. There were limits to the risks that could be taken.").

22. *Foreword* to ROYAL AIR FORCE DIRECTORATE OF DEF. STUDIES, UAVS: THE WIDER CONTEXT, *supra* note 21, at 2.

23. *See* Christina J.M. Goulter, *The Development of UAVs and UCAVs: The Early Years*, *in* ROYAL AIR FORCE DIRECTORATE OF DEF. STUDIES, UAVS: THE WIDER CONTEXT, *supra* note 21, at 11.

24. BLOM, *supra* note 21, at 46 (2010) (describing "the Bug" as a prototype of the UAS, which "had a counter that measured the number of rotations made by the propeller" and at a preset number would drift towards the ground and towards a particular target); *see* Goulter, *supra* note 23, at 13 (explaining that the war ended before the tools were used in combat).

the Soviet Union and the United States worsened during the 1960s, the U.S. employed drones as a successful reconnaissance tool.[25] UAS were put to use during the Vietnam War due to the necessity for stealth in monitoring the activities on the North and South Vietnamese borders.[26] During this period, the research focused on creating technology that could reach higher altitudes and remain aloft for longer periods of time.[27]

During the 1980s, the development of UAS moved from an idea in need of innovation and proper management to a tool that played a significant role in military operations worldwide.[28] In 1990, Saddam Hussein invaded Kuwait giving developers an opportunity to learn from the use of UAS.[29] The UAS available at the time proved to be extremely valuable by providing information about enemy positions.[30] It was during this period that the technology expanded exponentially. Operations in Afghanistan and Iraq, following the 2001 attack of the World Trade Centers, provided another forum to experiment with new tools, demonstrated by the increase in the type and quantity of missions performed by

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25. *See* Goulter, *supra* note 23, at 11. This advance was made in reaction to the loss of the U2 Spyplane in 1960 over the USSR. *Id.*

26. *Id.* It can be argued that it was during this period that the technology really takes off. It is difficult to ignore the role played by cruise missiles and ballistic missiles when speaking about the military development of drones. *Id.* at 19. Cruise missiles are essentially a version of a drone that can be dispatched and guided in flight, but they cannot hover or return to base. Sifton, *supra* note 21.

27. BLOM, *supra* note 21, at 64. There was also progress made in the stealth capabilities of the UAS that could prevent them from being detected on a radar. *Id.* at 65.

28. During this period, the DARPA began to look for ways to create a long endurance UAS and merge them with new technologies. David Jordan & Ben Wilkins, *Unmanned Aerial Vehicles Operations Since the 1980s*, *in* ROYAL AIR FORCE DIRECTORATE OF DEF. STUDIES, UAVS: THE WIDER CONTEXT, *supra* note 21, at 28. There is little known about the breadth of DARPA's UAS research and development because many of their programs are concealed due to security concerns. *Id.* DARPA began to explore the idea of combining long endurance technologies with other emerging technologies, such as solar power. *Id.* The agency's efforts resulted in three small UAV's designed for reconnaissance and three other prototypes intended to serve as loitering cruise missiles. *Id.*

29. *Id.* at 30–32.

30. *Id.* at 31.

UAS.[31] The first armed drone was flown in Afghanistan in 2001, and the next year the CIA used an unmanned Predator drone in a targeted killing.[32] The CIA continues to use aggressive drone attacks in Pakistan, Yemen, and Somalia as a more accurate method of aerial attacks.[33]

B. Benefits and Capabilities of Domestic Drones

The potential uses of drone technology are seemingly endless. Currently, drones are being used by the Department of Homeland Security in performing border and port surveillance, by NASA for scientific research and environmental monitoring, by universities to conduct research, and to support other activities by government entities.[34] Drones can also be used by fire departments,[35] farmers to assist in agriculture and ranching,[36] humanitar-

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31. BLOM, *supra* note 21, at 105.

32. Sifton, *supra* note 21. This attack remains controversial because the target of the strike was a "tall man" purported to be Osama bin Laden. *Id.* Military officials were quick to acknowledge that the "tall man" was not bin Laden, but continue to claim that the targets of the strike were "legitimate" and "appropriate." *Id.*

33. Ajoke Oyegunle, Comment, *Drones in the Homeland: A Potential Privacy Obstruction Under the Fourth Amendment and the Common Law Trespass Doctrine*, 21 COMMLAW CONSPECTUS 365, 375–76 (2013). The drone program was expanded under President Barack Obama. *See* Matt Sledge, *The Toll of 5 Years of Drone Strikes: 2,400 Dead*, THE HUFFINGTON POST (Jan. 23, 2014, 7:32 PM), http://www.huffingtonpost.com/2014/01/23/obama-drone-program-anniversary_n_4654825.html (estimating that 2,400 people were killed by drone attacks in the five years since his administration initiated its program).

34. ROADMAP, *supra* note 1, at 25 (explaining that unmanned aircraft are currently operating in the NAS under very controlled circumstances).

35. Jay Stapleton, *The Drone Dilemma; Unmanned Aircraft Run Into Raft of Regulatory, Privacy Issues*, CONN. L. TRIB., Feb. 17, 2014, at 1 (describing a situation in which a man used a drone he owned personally to communicate hazards to firefighters below); *see also* Greg Jakubowski, *Preplanning & Incident Management Trends*, FIREFIGHTER NATION, Sept. 2013 (describing several situations in the firefighting and rescue context that could benefit from the deployment of drones).

36. This method of agriculture has been used in Japan since the early 1990s as a way to assist elderly farmers and prevent pesticides from entering residential areas. Sara Sorcher, *What Can Drones Do for You*, NAT'L J. (Apr. 11 2013), https://www.nationaljournal.com/s/81276/what-drones-can-do-you?q (arguing that using a drone to apply pesticides to crops is preferable to the current method of spraying the entire field, which wastes money, resources, man-

ian missions,[37] search and rescue operations,[38] mining and property related endeavors,[39] and as a delivery tool.[40]

Hobbyists have spent decades building and using remote-controlled aerial vehicles; however, the capabilities of the average drone greatly exceed expectations for the typical model airplane.[41] Drones come in a variety of sizes and capabilities that can be customized to fit the operator's needs.[42] Individuals are able to purchase and assemble drones, as well as equip the drone with other technologies that will expand the capabilities of the drone.[43] The

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power, and increases pollution). Ranchers can also use drones to test the air quality in feed lines, track livestock, and detect health problems in animals. *Id.*

37. The benefits for humanitarian missions include the ability to obtain samples from, or send medicine and other supplies to people in need when roads are inaccessible and manned aircraft are of short supply or unavailable. *Id.*

38. Sonia Waharte & Niki Trigoni, Supporting Search and Rescue Operations with UAVs, University of Oxford (unpublished manuscript), https://www.cs.ox.ac.uk/files/3198/submission_waharte.pdf.

39. *See* Robert Spence, *The Mining Sector Puts Drones to Work*, MINING GLOBAL (Sept. 24, 2014), http://www.miningglobal.com/tech/1167/The-Mining-Sector-Puts-Drones-to-Work (explaining the various ways in which the mining industry would benefit from the use of drones in the field). *See generally* Sorcher, *supra* note 36.

40. John Aziz, *Why You Should Be Excited About Amazon's Drone Delivery*, THE WEEK (Dec. 2, 2013), http://theweek.com/articles/455298/should-excited-about-amazons-drone-delivery.

41. Rule, *supra* note 5, at 159–60; *see also Radio Control*, ACAD. OF MODEL AERONAUTICS, http://www.modelaircraft.org/museum/radiocontrol.aspx (last visited Feb. 21, 2016).

42. Ben Jenkins, Note, *Watching The Watchmen: Drone Privacy and the Need for Oversight*, 102 KY. L.J. 161, 163 (2014) ("Drones can range in size from a traditional jet to an insect.").

43. There are a variety of surveillance and other technologies that can be attached to drones. ACLU REPORT, *supra* note 7, at 5–6. "High-power zoom lenses . . . "allow for significant zooming" to focus on specific people without a chance of them noticing. *Id.* at 5. Infrared imaging shows heat emitted by objects, so it can identify living things in the dark. *Id.* "Ultraviolet (UV) imaging can detect some materials not visible in natural or infrared light" and is likely to improve by becoming more sensitive and available at higher resolutions. *Id.* "Synthetic Aperture Radar" is a technology that can see through inclement weather conditions and vegetation, "and has the potential to penetrate the earth and walls. *Id.* "Video analytics" will allow the technology "not just to collect [the footage] but also to 'watch' video . . . . and [be able] recognize and respond to specific people, events, and objects." *Id.*

most commonly used drone among hobbyists is the backpack-craft-style drone.[44] A drone this size can be built, carried, and operated by a single person.[45]

C. The Privacy Threat from Hobbyist Drones

The improvement of drone technology has many positive applications, but also presents serious privacy concerns. New types of technology inevitably create new modes of human collaberation and conflict; and consequently, they create novel and interesting legal issues.[46] Model airplane operators and drone enthusiasts are quickly becoming proficient in UAS operation. The advancement of drone technology is eroding the limitations inherent to manned aircraft because UAS are affordable, require little maintenance, and hobbyists are permitted to fly with few restrictions and with little, if any, aviation qualification.[47]

As the cost of UAS technology decreases, more drones will be entering the airspace. Increasing drone use, especially drones equipped with camera and sensory devices, will inevitably lead to new threats that an operator will violate an individual's right to privacy. For example, on YouTube, there are hundreds of videos shot by hobbyist drone operators, recording everything from sporting events, DUI checkpoints, national parks, public beaches, and other public areas.[48] The amount of videos available gives some indication as to the prevalence of hobbyist drones. Peeping toms, as well as unsuspecting drone operators, will be able to use the technology to see people in their most intimate moments.[49]

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44. An example is an AeroVironment Raven that weighs 4 pounds, has a 4.5 feet wingspan, and can fly up to 14,000 feet and stay in the air for 110 minutes. *See id.* at 3.

45. *Id.*

46. Thomas Clark, *Drones in Our Future: Opportunity and Privacy Considerations*, CAL. ST. ASSEMBLY 2 (Aug. 8, 2014), http://ajud.assembly.ca.gov/sites/ajud.assembly.ca.gov/files/reports/Drones%20Background%20Paper.pdf.

47. 14 C.F.R. § 91 (2015) (demonstrating the lack of restrictions that govern hobbyist drone operators).

48. *See, e.g.*, Epic Drone Videos: Sharing the Worlds Best Drone Videos, YOUTUBE, https://www.youtube.com/channel/UC9FmF7MZlsl3QCWtuCAnOeQ (last visited Feb. 25, 2016).

49. This inadvertently happened in 2004 when the New York police helicopter equipped with night vision found a couple engaged in sexual relations on

Numerous reports indicate the pervasiveness of drones and demonstrate reactions of people who have come face to face with a bothersome drone. In Seattle, a woman heard a noise outside that sounded like a weed eater, but it was actually a drone hovering by her third story window.[50] In another drone incident, a woman spotted a drone hovering at her bedroom window on the 26th floor of her apartment building as she was dressing.[51] The woman described the situation as "freaky" and immediately notified the building security personnel.[52] Recently, a family reported a drone that was flying around their home as they were enjoying dinner on their patio.[53] The drone subsequently crashed into a tree in the yard and the family was able to recover a memory chip from the drone.[54] The memory chip revealed pictures of the family's activities that afternoon, as well as photos from other houses.[55]

Additionally, this is a problem when private people are recorded by drones in a public place. There have been a number of incidents taking place at public beaches where drones have reportedly been lurking around unsuspecting sunbathers.[56] Following a

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a dark, private rooftop balcony. *See* Jim Dwyer, *Police Video Caught a Couple's Intimate Moment on a Manhattan Rooftop*, N.Y. TIMES (Dec. 22, 2005), www.nytimes.com/2005/12/22/nyregion/22rooftop.html.

50. Rebecca J. Rosen, *So This is How It Begins: Guy Refuses to Stop Drone-Spying on Seattle Woman*, THE ATLANTIC (May 13, 2013), http://www.theatlantic.com/technology/archive/2013/05/so-this-is-how-it-begins-guy-refuses-to-stop-drone-spying-on-seattle-woman/275769/ (describing an incident in which a woman spotted a drone hovering over her yard outside of her home at the third story window).

51. Christina Sterbenz, *Should We Freak Out About Drones Looking in Our Windows?*, BUSINESS INSIDER (Sept. 24, 2014, 2:22 PM), http://www.businessinsider.com/privacy-issues-with-commercial-drones-2014-9.

52. *Id.*

53. Corey Vaughn, *Drone Drops in on Family*, THE DAILY IBERIAN (Jan. 30, 2015), http://www.iberianet.com/news/drone-drops-in-on-family/article_9cf3b2c0-a89a-11e4-bd19-4f0d9d2b404f.html.

54. *Id.*

55. *Id.*

56. Joseph Serna, *As Hobby Drone Use Increases, So Do Concerns About Privacy, Security*, L.A. TIMES (June 21, 2014, 4:58 PM), http://www.latimes.com/local/la-me-drone-hobbyist-20140622-story.html (describing situations in California where a mother notified the lifeguard that a drone was hovering over her and her daughter snapping photos as they tanned;

Los Angeles Kings game, a group of celebrating fans noticed a drone was buzzing around their heads and videoing the festivities following the Stanley Cup.[57] The fans, angered that the drone was recording them, retaliated by hitting the drone down using a t-shirt and smashing it with a skateboard.[58] The police that responded to the incident stated that, if the owner came to claim his drone, they must give it back to him and do little else, because flying a drone in public is not illegal.[59]

In addition to private party concerns, several organizations are issuing blanket bans on drones in specific areas or events. The common sighting of drones in the national parks[60] caused the National Park Service to release a temporary ban on the use of drones in national parks.[61] The National Football League issued a statement that banned the use of drones at the 2015 Superbowl.[62] Major League Baseball banned Indians pitcher Trevor Bauer's drone that he built during offseason after he used it to take aerial shots during spring training.[63]

There are concerns that drone use will further erode personal privacy if the information collected by UAS is distributed to

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and in Connecticut, where a drone operator was attacked by a woman who accused him of snapping pictures of her).

57. *Id.*

58. *Id.*

59. *Id.*

60. *Id.* (describing two incidents in national parks, the first at Mt. Rushmore, where ranger confiscated a drone after it flew around the monument and over the heads of visitors, and the second at Zion National Park in Utah where volunteers "watched a drone buzz over a herd of big horn sheep, separating the adults from the young").

61. Press Release, Nat'l Park Serv., Unmanned Aircraft to be Prohibited in America's National Parks (June 20, 2014), http://www.nps.gov/cure/learn/news/unmanned-aircraft-prohibition.htm (quoting National Park Service Director Jonathon Jarvis, "[w]e have serious concerns about the negative impact that flying unmanned aircraft is having in parks, so we are prohibiting their use until we can determine the most appropriate policy that will protect park resources and provide all visitors with a rich experience.").

62. Michael S. Schmidt & Michael D. Shear, *Drones Spotted, but Not Halted, Raise Concerns*, N.Y. TIMES, Jan. 30, 2015, at A1.

63. Extra Mustard, *Indians Pitcher Flies Drone Over Spring Training, MLB Promptly Bans It*, SPORTS ILLUSTRATED (Feb. 20, 2015), http://www.si.com/extra-mustard/2015/02/20/cleveland-indians-trevor-bauer-drone-banned.

consumer data brokers. In a statement by Senate Commerce Committee Chairman Jay Rockefeller, he pointed out that "consumers are 'already under assault' from the multi-billion dollar data broker industry 'dedicated to tracking our health status, our shopping habits, and our movements.'"[64] As drone technology continues to become more pervasive, the "worry that drones . . . could be yet another way for private companies to track where we are and what we are doing" becomes more serious.[65] The effect on society could be damaging if people begin to believe that someone is always monitoring their behavior.[66]

III. CURRENT LEGAL LANDSCAPE

This Part addresses the current efforts by the federal and state government to regulate drone use. Section A discusses action taken by of the Federal Aviation Administration, which is the federal government's primary regulatory authority for nearly every aspect of the aviation activities. Section B provides an overview of federal legislative attempts and executive weigh-ins on the issue. Section C provides a brief account of the executive regulatory efforts. Section D highlights state regulatory attempts and some of the problems associated with the state legislative action.

A. Federal Aviation Administration

The FAA is the division of the Department of Transportation that is in charge of regulating the national airspace by ensuring it is used in a safe and efficient manner.[67] The FAA regulates aircraft design, manufacture, repair, and operation by publishing a set of rules in the Code of Federal Regulations.[68] Generally, no air-

64. Clark, *supra* note 46, at 5.

65. *Id.*

66. Psychologists have found that people tend to behave differently when they feel like are being observed which could create a chilling effect on an individual's general decision-making and behavior. M. Ryan Calo, *People Can Be So Fake: A New Dimension to Privacy and Technology Scholarship*, 144 PENN ST. L. REV. 809, 842–43 (2010).

67. ROADMAP, *supra* note 1, at 14.

68. 14 C.F.R. pt. 23, 25 (2015); *see also* Clark, *supra* note 46, at 5. The FAA also releases clarification and policy documents in the form of agency orders, advisory circulars, and notices-to-airmen. They license pilots, regulation

craft may operate in the national airspace without some sort of approval from the FAA.[69]

1. FAA Modernization and Reform Act of 2012

It is not shocking that the FAA is under tremendous pressure from legislators, manufacturers, and commercial industry representatives to develop a strategy to safely integrate drones into the national airspace system ("NAS").[70] The FAA Modernization and Reform Act of 2012 ("FMRA") required the FAA to develop a plan to safely integrate UAS into the NAS.[71] The purpose of the law was to introduce drones for domestic use by revamping the nation's air traffic control system and to accelerate the expansion of drone use by September 30, 2015.[72] The FMRA requires that the Secretary of Transportation, in consultation with the industry representatives and other federal agencies who employ UAS,[73] to develop a comprehensive plan to safely facilitate the integration of civil UAS into the national airspace by the September 2015 deadline.[74] The comprehensive plan supports coordination and integra-

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commercial airlines, oversee the operation of air traffic control, issue certificates to who can operate in the airspace.

69. Clark, *supra* note 46, at 2.

70. The FAA first approved use of UAS in 1990. Press Release, Fed. Aviation Admin., Fact Sheet – Unmanned Aircraft Systems (UAS) (Feb. 15, 2015), https://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=18297.

71. The FMRA is an appropriations and reform law. FAA Modernization and Reform Act of 2012, Pub. L. No. 112–95, 126 Stat. 11 (2012).

72. *Id.*

73. The agencies involved in the integration of UAS include, but are not limited to, the following: the Department of Transportation, Defense, Commerce, Homeland Security, National Aeronautics and Space Administration, and the Federal Aviation Administration. *Id.*; *see* ROADMAP, *supra* note 1, at 7 ("The FAA will coordinate these integration activities with other United States Government agencies, as need, through the Interagency Planning Committee (IPC).").

74. FAA Modernization and Reform Act of 2012, Pub. L. No. 112–95, § 332, 126 Stat. 11, 73 ("The plan required . . . shall contain, at a minimum, recommendations or projections on . . . the best methods to enhance the technologies and subsystems necessary to achieve safe and routine operation of civil unmanned aircraft systems . . . a timeline for the phased-in approach [to integration] . . . airspace designation for cooperative manned and unmanned aircraft systems into the national airspace system . . . [and the] establishment of a pro-

tion of research and development, explaining that an assessment of the needs and prioritization of activities are essential to integrating UAS.[75] The FAA failed to meet the deadline for creating national drone regulations.[76]

The FAA faces difficulty as they attempt to craft regulations that are not overly broad or too narrow.[77] They must clarify which regulations apply to these types of aircrafts to ensure that the definition is broad enough to encompass all forms of unmanned aircraft, without unintentionally regulating current operators in the NAS, such as manned aircraft.[78] The "requirements [for UAS] will vary depending on the nature and complexity of the operation, aircraft or component system limitations, pilot and other crewmember qualifications, and the operating environment."[79] The FAA considers unmanned aircraft to be an aircraft flown by a pilot, despite the fact that there is no pilot onboard. Due to this assumption, existing regulations and policies will be applied to unmanned aircraft.[80] The current procedures that apply to manned aircraft are

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cess to develop certification, flight standards, and air traffic requirements for civil unmanned aircraft systems at test ranges . . . ."); *see also* ROADMAP, *supra* note 1, at 18.

75. JOINT PLANNING AND DEV. OFFICE, *supra* note 4, at 13.

> Integration of UAS into the NAS will require: review of current policies, regulations, environmental impact, privacy considerations, standards, and procedures; identification of gaps in current UAS technologies and regulations, standards, policies, and procedures; development of new technologies and new or revised regulations, standards, policies, and procedures; and the associated development of guidance material, training, and certification of aircraft systems, propulsion systems, and airmen.

ROADMAP, *supra* note 1, at 7.

76. Wagstaff, *supra* note 11.

77. "Ultimately, UAS must be integrated into the NAS without reducing existing capacity, decreasing safety, negatively impacting current operators, or increasing the risk to airspace users or persons and property on the ground any more than the integration of comparable new and novel technologies." ROADMAP, *supra* note 1, at 4.

78. *Id.* at 4.

79. *Id.* at 23.

80. *Id.* at 9.

not suitable for UAS.[81] The complete integration of the UAS in other airspace classes will require the development of new or supplemental procedures.[82]

The FMRA establishes three categories of UAS with separate rules that apply to each.[83] The three broad categories of UAS are public, civil, and private drones. Currently, public and civil drone operators must obtain FAA approval before operating drones.[84] Public drones are owned and operated by a governmental entity, which must apply for a certificate of authorization or waiver.[85] Civil drones, those used for commercial or business purposes, must obtain a special airworthiness certificate from the FAA by demonstrating that they can operate safely within assigned flight test areas and will cause no harm.[86] The FMRA contains a carve-out provision with respect to drones that are flown for recreational purposes.[87] Hobbyists are permitted to use the national

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81. *Id.* at 25. "Existing airworthiness standards have been developed from years of operational safety experience with manned aircraft and may be too restrictive for UAS in some areas and inadequate in others." *Id.*

82. *Id.* at 18.

83. FAA Modernization and Reform Act of 2012, Pub. L. No. 112–95, § 333(b), 126 Stat. 11, 76. The decision on which UAS will have these special rules will be based on a determination of "which types of unmanned aircraft systems, if any, as a result of their size, weight, speed, operational capability, proximity to airports and populated areas, and operation within visual line of sight do not create a hazard to users of the national airspace system or the public or pose a threat to national security." *Id.*

84. *Public Operations (Governmental)*, FED. AVIATION ADMIN., http://www.faa.gov/uas/public_operations/ (last updated Sept. 11, 2015); *Civil Operations (Non-governmental)*, FED. AVIATION ADMIN., http://www.faa.gov/uas/civil_operations/ (last updated Mar. 17, 2015).

85. *Public Operations (Governmental)*, *supra* note 84.

86. Drones used for commercial purposes fall into this category. *Id.*

87. FAA Modernization and Reform Act § 336 ("[T]he Administrator of the Federal Aviation Administration may not promulgate any rule or regulation regarding a model aircraft, or an aircraft being developed as a model aircraft, if . . . the aircraft is flown strictly for hobbyist or recreational use . . . ."). Recent reports indicate however, that model airplanes may be subject to the new FAA rules regarding small UAS. *See* Gregory S. McNeal, *FAA's Proposed Drone Rules May Address Toy Drones*, FORBES (Jan. 29, 2015 11:26 AM), http://www.forbes.com/sites/gregorymcneal/2015/01/29/in-a-surprise-change-faas-proposed-drone-rules-will-address-toy-and-hobbyist-drones/.

airspace without any advanced permission, if they abide by the standards set forth in section 336 of the FMRA.[88]

2. FAA's Authority to Regulate Hobbyist Drones

The authority of the FAA to regulate the national airspace is premised on the fact that "'air travel is inherently interstate travel' and thus falls within federal jurisdiction based on the Commerce Clause."[89] With the rise of hobbyist drones, that by their very definition operate at less than 500 feet of altitude and often do not travel interstate, the federal authority over such operations is arguably uncertain.[90] Under current FAA regulations, the FAA contends that drones used for recreational purposes must follow the guidelines set forth in Advisory Circular 91-57 ("AC 91-57"), released in 1981.[91] AC 91-57 "outlines, and encourages voluntary compliance with safety standards for model aircraft operators."[92] The suggestions include that the operators stay a

> sufficient distance from populated areas[,] . . . do not operate model aircraft in the presence of spectators until the aircraft is sufficiently flight tested and

88. FAA Modernization and Reform Act § 336. The conditions include that the aircraft is flown strictly for recreational purposes, the aircraft is not more the 55 pounds, the aircraft operates in a way that does not interfere with any manned aircraft, and that when flown within 5 miles of an airport, the operator gives the prior notice to the air traffic controller. *Id.* Drones used for recreational use or hobby are prohibited from flying above 400 feet, operating near airports, flying at night and must stay within the line of sight of the operator. *Model Aircraft Operations*, FED. AVIATION ADMIN., http://www.faa.gov/uas/model_aircraft/ (last updated Feb. 10, 2016).

89. Rule, *supra* note 5, at 198 (quoting Jeffrey A. Berger, Comment, *Phoenix Grounded: The Impact of the Supreme Court's Changing Preemption Doctrine on State and Local Impediments to Airport Expansion*, 97 NW. U. L. REV. 941, 965 (2003)).

90. *Id.* at 198–99.

91. DEP'T OF TRANSP., FED. AVIATION ADMIN., MODEL AIRCRAFT OPERATING STANDARDS, ADVISORY CIRCULAR 91-57 (1981) [hereinafter AC 91-57].

92. Respondent's Motion to Dismiss at 5, Huerta v. Pirker, No. CP-217 (N.T.S.B. 2014) (explaining that AC 91-57 does not distinguish between model airplanes that are flown for recreational use or those that are flown for a commercial or business purpose).

> proven airworthy[,] . . . do not fly model aircraft higher than 400 feet above the surface[,] . . . [and] when flying aircraft within 3 miles of an airport, notify the control tower, or flight service station.[93]

In a later policy statement issued in 2007, the FAA clarified that to qualify as a model airplane, the operator must only fly the aircraft for recreational purposes.[94]

The carve-out provision for recreational drones in the FMRA also contains language that nothing will limit the FAA's authority to take action against an individual who uses their model aircraft in a way that endangers the safety of the NAS.[95] In an attempt to regulate drone operators, the FAA issues cease and desist letters.[96] It is important to note that the guidelines established by the FAA with regard to model airplanes and recreational drones do not carry the weight of the law[97] and the FAA has not attempted to enforce them as such until recently.[98]

Thus far, one operator has successfully challenged the FAA's authority to regulate hobbyist drone use.[99] An administrative judge found for the operator, who argued that the attempts to

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93. AC 91-57, *supra* note 91.

94. Unmanned Aircraft Operations in the National Airspace System, 72 Fed. Reg. 6689-01 (Feb. 13, 2007) (to be codified at 14 C.F.R. pt. 91).

95. FAA Modernization and Reform Act of 2012, Pub. L. No. 112–95, § 336(b), 126 Stat. 11, 77.

96. Michael Berry & Nabiha Syed, *Litigation Pushes Back Against FAA Enforcement*, WASHINGTON POST (Sept. 24, 2014), http://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/09/24/litigation-pushes-back-against-faa-enforcement/.

97. The FAA is required to adhere to the requirements of the to the Administrative Procedures Act ("APA"), which lays out the process for which a federal agency may enact rules and regulations. Administrative Procedures Act, 5 U.S.C. § 553 (2013). This process is required for any informal rulemaking that will bind the public to comply. *Id.; see also* Decisional Order, Huerta v. Pirker, No. CP-217 (N.T.S.B. Mar. 6, 2014). For more information on the APA, see Thomas W. Merrill & Kathryn Tongue Watts, *Agency Rules with the Force of Law: The Original Convention*, 116 HARV. L. REV. 467 (2002).

98. FED. AVIATION ADMIN., INTERIM OPERATIONAL APPROVAL GUIDANCE 08-01: UNMANNED AIRCRAFT SYSTEMS OPERATIONS IN THE U.S. AIRSPACE SYSTEM 6 (2008).

99. Decisional Order, Huerta v. Pirker, No. CP-217 (N.T.S.B. Mar. 6, 2014).

regulate the use of UAS through the Advisory Circular and the policy statements are not valid because they were not subjected to the requirement for agency rulemaking set out in the Administrative Procedures Act.[100] It is clear that the FAA does have the power to bring action against hobbyist that use drones in a way that will impact high altitude flights or operate near airports, but their authority with regard to safe, low altitude operations remains to be seen.[101] Examined holistically, the FAA's regulations regarding hobbyist drones are vague and arbitrary.[102]

B. Federal Legislative Attempts

Given that the FAA is struggling to implement regulation, it is unsurprising that the legislative process has taken hold of the issue. Federal bills aimed at drone usage largely focus on their use by public officials[103] and are attempts to fill gaps that are perceived in the FMRA.[104] The Preserving America Privacy Act includes

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100. The APA requires that a governing agency publish a notice of the proposed rule in the Federal Register that includes the time and place of the proceeding regarding the proposed rules to give interested persons an opportunity to review and submit their views on the proposed rules. Administrative Procedures Act, 5 U.S.C. § 553.

101. Rule, *supra* note 5, at 164.

102. Most drones operate on a system that controls the drone through some type of video that can be seen on the operator's handheld device. *See id.* at 157. These are naturally meant to be operated outside of the operator's line of sight, and commonly are. *Id.* at 163–64. The recently released FAA plan for small commercial drones require that those drones stay below 500 feet, but it is unclear what the purpose is served by 100 feet altitude difference for hobbyist and commercial drones. Bart Jansen, *FAA Unveils Drone Rules; Obama Orders Policy for Agencies*, USA TODAY (Feb. 16, 2015, 8:12 AM), http://www.usatoday.com/story/news/2015/02/15/faa-drone-rule/23440469/.

103. This Note does not address issues raised by government or public use of drones.

104. *See* Drone Aircraft Privacy and Transparency Act of 2013, H.R. 1262, 113th Cong. (2013) (requiring that every applicant for a UAS certificate to include in its application information on how it intends to collect, use and retain information; require FAA to make these applications available on its website; prohibit law enforcement from using UAS for investigation and intelligence purposes without a warrant, subject to certain exceptions; and require any UAS application by law enforcement to include a minimum data statement); Preserving Freedom from Unwarranted Surveillance Act of 2012, S. 3287, 112th Cong. (2012); Cameron Cloar, *Unmanned Aircraft: Filling US Airspace – And Court-*

specific provisions that address the use of a drone by a private citizen to capture any type of visual image or recording that would be highly offensive to a reasonable person.[105] The Drone Aircraft Privacy and Transparency Act of 2013 would obligate the Secretary of Transportation to "establish procedures to ensure that the integration of unmanned aircraft systems into the national airspace is done in compliance with privacy principles."[106] Another proposed federal bill that, if passed, would apply to hobbyist drones is the No Armed Drones Act, which would modify the FMRA to prevent armed drones from entering the national airspace.[107]

C. Executive Regulatory Efforts

The White House released an executive memorandum addressing privacy concerns posed by both public and private drone operators on February 15, 2015.[108] The memo was designed to

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rooms?, LAW360 (July 5, 2012, 12:44 PM), http://www.law360.com/articles/355118/unmanned-aircraft-filling-us-airspace-and-courtrooms.

105. Preserving American Privacy Act of 2013, H.R. 637, 113th Cong. § 319f (2013) ("It shall be unlawful to intentionally operate a private unmanned aircraft system to capture, in a manner that is highly offensive to a reasonable person, any type of visual image, sound recording, or other physical impression of a individual engaging in a personal or familial activity under circumstances in which the individual had a reasonable expectation of privacy, through the use of a visual or auditory enhancing device, regardless of whether there was a physical trespass, if this image, sound recording, or other physical impression could not have been achieved without a trespass unless the visual or auditory enhancing device was used").

106. H.R. 1262 § 338. This was reintroduced in 2015 as the Drone Aircraft Privacy and Transparency Act of 2015. Drone Aircraft and Transparency Act of 2015, S. 635, 114th Cong. (2015).

107. No Armed Drones Act of 2013, H.R. 1083, 113th Cong. (2013).

108. Memorandum from President Barack Obama, Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems (Feb. 15, 2015), https://www.whitehouse.gov/the-press-office/2015/02/15/presidential-memorandum-promoting-economic-competitiveness-while-safegua; *see also* Kevin Robillard & Erin Mershon, *Obama to Issue Drove Privacy Order*, POLITICO (July 23, 2014, 7:01 PM), http://www.politico.com/story/2014/07/executive-order-drone-privacy-barack-obama-109303.html#ixzz38PrOcxLj; Charles D. Tobin et al., *FAA Proposes Commercial Drone Rules As White House Issues Executive Memo*, HOLLAND & KNIGHT (Feb. 17, 2015), http://www.hklaw.com/publications/FAA-Proposes-

address the privacy and transparency issues raised by various members of congress and civil liberty groups. The memo directed at the National Telecommunications and Information Administration ("NTIA") to develop operational guidelines for drone use that will "develop and communicate best practices for privacy, accountability and transparency issues regarding commercial and private UAS use."[109] The NTIA is a section of the Commerce Department and would work with other government agencies to develop guidelines for commercial drone operators.[110] The NTIA has conducted similar investigations involving multi-stakeholder privacy interests for issues that arose during the introduction of technology such as mobile application and facial recognition.[111]

D. State Legislative Actions

"Concerns over privacy tend to manifest themselves at the local level," meaning that states are largely responsible for enacting legislation restricting the private use of drones.[112] Thus far, twenty-six states have enacted legislation and six have enacted resolutions concerning drone use.[113] In 2013, forty-three states

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Commercial-Drone-Rules-As-White-House-Issues-Executive-Order-02-17-2015/?utm_source=Mondaq&utm_medium=syndication&utm_campaign=View-Original.

109. Tobin et al., *supra* note 108; *see also* Gregory S. McNeal, *Drones Face Critical Moment as White House Prepares to Act*, FORBES (Nov. 30, 2014, 6:23 PM), http://www.forbes.com/sites/gregorymcneal/2014/11/30/drones-face-critical-moment-as-white-house-prepares-to-act/.

110. McNeal, *supra* note 109.

111. Tobin et al., *supra* note 108.

112. Raymond L. Mariani, *Rise of the Drones: The Growing Proliferation of Unmanned Aircraft in the National Airspace System*, THE BRIEF, Summer 2014, at 18, 23; *see also* Melanie Reid, *Grounding Drones: Big Brother's Tool Box Needs Regulations Not Elimination*, 20 RICH. J. L. & TECH. 9, 25 (2014).

113. *Current Unmanned Aircraft State Law Landscape*, NAT'L CONF. OF ST. LEGISLATURES, http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx (last updated Feb. 26, 2016); Allie Bohm, *The Year of the Drone: An Analysis of State Legislation Passed This Year*, AM. CIV. LIBERTIES UNION (Nov. 7, 2013, 8:50 AM), https://www.aclu.org/blog/technology-and-liberty/year-drone-roundup-legislation-passed-year [hereinafter *The Year of the Drone*] ("[I]t is . . . remarkable that many bills were enacted the first session out of the gate given that legislation often takes multiple years to marinate and gain legislator and public

considered bills related to domestic drones and eight states enacted legislation related to drone use.[114] Four of the states simply appropriated money for programs related to drones, generally for the purpose of promotion rather than restriction.[115] The reluctance to enact legislation that would restrict private use may be due to of economic considerations or because they are being considered as locations for drone test sites.[116]

Not all states share this sentiment with regard to drones. Of the nine that imposed restrictions, most deal with law enforcement and other governmental agencies, on which this Note does not address.[117] In 2013, three states enacted legislation that aimed at imposing restrictions on the private use of drone technology.[118] Idaho approved the first UAS bill, which is aimed at protecting people from surveillance by UAS.[119] Oregon also passed drone legislation

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support before passing."); *see, e.g.*, S.B. 1221, 27th Legis., Reg. Sess. (Haw. 2013).

114. *Current Unmanned Aircraft State Law Landscape*, NAT'L CONF. OF ST. LEGISLATURES, http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx (last updated Feb. 26, 2016); *see* Allie Bohm, *Status of 2014 Domestic Drone Legislation in the States*, AM. CIV. LIBERTIES UNION (April 22, 2014, 10:30 AM), https://www.aclu.org/blog/technology-and-liberty/status-2014-domestic-drone-legislation-states [hereinafter *Status of 2014 Domestic Drone Legislation*]; *see also, e.g.*, FLA. STAT. ANN. § 934.50 (West 2015).

115. *2013 State Unmanned Aircraft Systems (UAS) Legislation*, NAT'L CONF. OF ST. LEGISLATURES, http://www.ncsl.org/research/transportation/2013-state-unmanned-aircraft-systems-uas-legislation.aspx (last updated July 21, 2015).

116. Hawaii, Maryland, Nevada, and North Dakota are the four states that passed these types of bills. *See id.* Interestingly, of these four states that enacted this type of promotional legislation, Hawaii, Nevada, and North Dakota were selected to operate a test range under the FAA's research and development plan. *See generally id.*

117. Oregon, Montana, Idaho, Texas, Illinois, Tennessee, Virginia, North Carolina, and Florida are states that enacted this type of legislation. *See id.*

118. *The Year of the Drone*, *supra* note 114; *see also, e.g.*, OR. REV. STAT. ANN. § 837.380 (West, Westlaw through 2015 Reg. Sess.), *Current Unmanned Aircraft State Law Landscape*, *supra* note 113.

119. *2013 State Unmanned Aircraft Systems (UAS) Legislation*, *supra* note 115. The bill prohibits individuals from using a drone to take photographs of private property without obtaining the owner's prior written permission. *Id.* (citing S.B. No. 1134, 62nd Leg., 1st Reg. Sess. (Idaho 2013)). Idaho has the

in 2013, which focuses on private property.[120] Texas passed legislation concerning drones used to capture images in certain types of circumstances.[121] The law creates two new crimes: the illegal use of an unmanned aircraft to capture images and the offense of possessing or distributing the image.[122]

Five states enacted legislation regarding drones in 2014. Indiana became the first state to enact UAS legislation in 2014,[123] which established that it is a crime for a person to intentionally, electronically survey the private property of another without first obtaining permission.[124] In Louisiana, it is unlawful to intentional-

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most sweeping of the regulations which allows a person to assert a private cause of action and recover "actual and general damages" from someone who uses a drone to photograph them, without written consent for the purpose of publicly disseminating such recording, defines an "Unmanned Aircraft System," requires warrants for their use by law enforcement, establishes guidelines for their use by private citizens and provides civil penalties for damages caused by improper use. *Id.*

120. *Id.* If a person has notified the drone operator on a previous occasion that they do not wish for the operator to fly the drone over their property, a landowner can bring an action against that operator for flying the drone lower than 400 feet over their property. *Id.* (citing OR. REV. STAT. § 837.380 (West 2013), *amended by* OR. REV. STAT. ANN. § 837.380 (West, Westlaw through 2015 Reg. Sess.)). The law also requires that the DOA must report to legislative committees on the status of federal regulations and whether UAS's operated by private parties should be registered in a manner similar to the requirement for other aircraft. *Id.* (citing OR. REV. STAT. § 837.360 (West 2013), *amended by* OR. REV. STAT. ANN. § 837.360 (West, Westlaw through 2015 Reg. Sess.)).

121. *Id.* (citing Texas Privacy Act, TEX. GOV'T CODE ANN. § 423 (West, Westlaw through 2015 Reg. Sess.)) (enumerating many lawful uses for unmanned aircraft, including their use in airspace designated as an FAA test site, use in connection with a valid search warrant and use in oil pipeline safety).

122. *2013 State Unmanned Aircraft Systems (UAS) Legislation*, *supra* note 115. Texas Privacy Act §§ 423.003–.004. "Image" is defined broadly as any sound wave, thermal, ultraviolet, visible light or other electromagnetic waves, odor, or other conditions existing on property or an individual located on the property. *Id.* at § 423.001.

123. *2014 State Unmanned Aircraft Systems (UAS) Legislation*, NAT'L CONF. OF ST. LEGISLATURES, http://www.ncsl.org/research/transportation/2014-state-unmanned-aircraft-systems-uas-legislation.aspx (last updated July 2, 2015) (citing IND. CODE § 35-46-8-5 (Lexis Nexis 2009)).

124. *Id.* (citing IND. CODE § 35-46-8-5 (Lexis Nexis 2009)). Note this law does not apply specifically to drone technology but more generally to all surveillance technology.

ly use a drone to carry out surveillance directed at a specific location without the owner's prior written permission.[125] North Carolina law creates a civil cause of action for those whose privacy is violated.[126] Tennessee adopted two new laws in 2014.[127] The first makes it a misdemeanor for any private entity to use a drone to conduct video surveillance of a person who is hunting or fishing without their consent.[128] The second law provides that it is a crime for a person to use UAS to knowingly conduct surveillance of an individual or their property.[129] Wisconsin enacted a law that regulates the use of a drone by a person, with the intent to observe another individual, in a place where they have a reasonable expectation of privacy.[130]

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125. *Id.* (citing LA. STAT. ANN. § 14:337 (Westlaw through 2015 Reg. Sess.)). The crime is punishable by a fine of up to $500 and imprisonment for six months. *Id.* A second offense can be punished by a fine up to $1,000 and one-year imprisonment. *Id.*

126. *2014 State Unmanned Aircraft Systems (UAS) Legislation*, *supra* note 123 (citing N.C. GEN. STAT. ANN. § 15A-300.1 (West 2014)). The new law prohibits any entity from conducting UAS surveillance of a person or private property and also prohibits taking a photo of a person without their consent for the purpose of distributing it. *Id.* The bill creates several new crimes: using UAS to interfere with manned aircraft, a class H felony; possessing an unmanned aircraft with an attached weapon, a class E felony; the unlawful fishing or hunting with UAS, a class 1 misdemeanor; harassing hunters or fisherman with a UAS, a class 1 misdemeanor; unlawful distribution of images obtained with a UAS, a class 1 misdemeanor; and operating a UAS commercially without a license, a class 1 misdemeanor. *Id.* (citing H.B. 1099, 2013 Gen. Assemb., Reg. Sess. (N.C. 2014)).

127. *Id.* (citing TENN. CODE ANN. § 70-4-302 (2012 & Supp. 2015); TENN. CODE ANN. § 39-13-609 (West, Westlaw through 2016 2nd Reg. Sess.)).

128. *Id.* (citing TENN. CODE ANN. § 70-4-302(a)(6) (2012 & Supp. 2015)).

129. *Id.* (citing TENN. CODE ANN. § 39-13-609(a)(1) (West, Westlaw through 2016 2nd Reg. Sess.)). It also makes it a crime to possess those images (Class C Misdemeanor) or to otherwise use them (Class B Misdemeanor). *Id.* The law also identifies 18 lawful uses of UAS, including the commercial use of UAS under FAA regulations, professional or scholarly research and for use in oil pipeline and well safety. *Id.*; *see also* BENNETT, *supra* note 3, at 5 ("[O]ne can escape liability by showing that, upon learning the images were obtained unlawfully, the drone operator promptly destroyed or stopped publicizing them." (citing TENN. CODE ANN. §§ 39-13-609)).

130. *Id.* (citing WIS. STAT. ANN. § 942.10 (West, Westlaw through 2015 Act 150)).

In 2015, twenty states passed legislation concerning drone use and eight of these new laws are concerned with regulating private, hobbyist drone operators.[131] Arkansas prohibits the use of a drone to commit any acts that would constitute an act of voyeurism[132] and outlawed the use of UAS to collect or record information about critical infrastructure without consent.[133] Florida enacted new legislation that prohibits the use of a UAS to capture images of privately owned property or the owner, tenant, or occupant of a property without first obtaining consent from said party if it can fairly be said that a reasonable expectation of privacy exists.[134] Illinois created a task force that would consider and prepare recommendations for both the private and commercial use of UAS within the state.[135] Maryland passed legislation that prevents other entities other than the state from enacting law that regulate the testing or operation of UAS.[136] Mississippi enacted legislation that specifies that using a drone to commit any type of "peeping Tom" activities is a felony if the victim is under the age of sixteen.[137] North Dakota provides limitations on how hobbyists can use UAS for surveillance purposes.[138] Tennessee enacted legislation to fur-

131. *See generally Current Unmanned Aircraft State Law Landscape*, NAT'L CONF. OF ST. LEGISLATURES, http://www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx (last updated Feb. 26, 2016).

132. *Id.* (citing ARK. CODE ANN. § 5-16-101(b) (West, Westlaw through 2015 Reg. Sess. & 2015 1st Ex. Sess.)).

133. *Id.* (citing ARK. CODE ANN. § 5-60-103(b) (West, Westlaw through 2015 Reg. Sess. & 1st Ex. Sess.)).

134. *Id.* (citing FLA. STAT. ANN. § 934.50 (West 2015)).

135. Unmanned Aerial System Oversight Task Force Act, Pub. L. No. 099-0392, 2015 Gen. Assemb. (Ill. 2015).

136. *Current Unmanned Aircraft State Law Landscape*, *supra* note 113 (citing MD. CODE ANN., ECON. DEV. § 14-301(b) (West, Westlaw through ch. 1–6 of 2016 Reg. Sess.)).

137. *Current Unmanned Aircraft State Law Landscape*, *supra* note 113 (citing MISS. CODE ANN. § 97-29-61 (West, Westlaw through end of 2015 Reg. Sess.)).

138. *Current Unmanned Aircraft State Law Landscape*, *supra* note 113 (citing N.D. CENT. CODE ANN. § 29-29.4-05 (West, Westlaw through ch. 484 of 2015 Reg. Sess.)).

ther the regulation of drones by prohibiting the use of a drone to capture images of open-air events and firework displays.[139]

E. Problems Faced by Legislative Attempts

It is interesting that as of yet, no plaintiff has brought a claim against another private citizen for the unlawful use of drones to invade or trespass on his or her property.[140] The enactment of this type of legislation ignores that there is already a body of existing, general privacy laws that are technology neutral that can be applied to protect privacy from varied forms of surveillance.[141] Many of the laws passed by the states are unnecessarily broad and could be found to infringe on certain fundamental rights.[142]

1. Preemption

The federal government has authority over the national airspace and should the Congress pass legislation aimed at civilian drone use, the state legislation would be rendered useless.[143] State attempts to impose curfews at airports or prevent flight over certain areas are often held to be federally preempted, demonstrating that there is precedent for preemption of state legislation regarding the

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139. *Current Unmanned Aircraft State Law Landscape*, *supra* note 113 (citing TENN. CODE ANN. § 39-13-609 (West, Westlaw through 2016 2nd Reg. Sess.)).

140. BENNETT, *supra* note 3, at 7.

141. *Id.* at 4.

142. Idaho's restrictions, for example, would likely inhibit a journalist from using a drone to collect information about a traffic situation absent the consent of all the people operating their vehicles on the road. Allie Bohm, *The First State Laws on Drones*, AM. CIV. LIBERTIES UNION (April 15, 2013, 3:13 PM), https://www.aclu.org/blog/first-state-laws-drones. It could prevent an aerial photographer from using the drones to take photos of public facilities for upcoming publications. *Id.*

143. Preserving American Privacy Act of 2013, H.R. 637, 113th Cong. § 3119i (2013). The language of the bill arguably implied that the law would preempt state regulation of drones that are flying between states. *See also* Margot E. Kaminski, *Drone Federalism: Civilian Drones and the Things They Carry*, 4 CALIF. L. REV. CIR. 57, 73 (2013) (explaining the preemption of state drone regulations).

national airspace.[144] The Preserving American Freedom Act contains language that arguably could be construed to preempt drone regulation passed by the state and would regulate drones flown state to state.[145]

The FAA's authority over airspace and privacy consideration was expanded in the FRMA.[146] Congress acknowledged the FAA's interest in privacy matters by altering the FAA's mission, calling on the FAA to conduct a study on the integration of the UAS integration into national airspace on individual privacy.[147] The language of the statement clearly shows that Congress intends for the FAA to do research on the future of privacy implications. Although the FAA claims that it will not be delving deeply into the privacy issues posed by drone use, officials acknowledge that there are privacy challenges that will be addressed as they integrate UAS into the national airspace.[148] The FAA proposed and requested public input on the privacy research for the test site programs,

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144. City of Burbank v. Lockheed Air Terminal, Inc., 411 U.S. 624, 633 (1973); San Diego Unified Port Dist. v. Gianturco, 651 F.2d 1309-10 (9th Cir. 1981); Kaminski, *supra* note 143, at 73.

145. "Nothing in this Act shall be construed to preempt any State law regarding the use of unmanned aircraft systems *exclusively within the borders of that State*." Preserving American Privacy Act of 2013 § 3119i (2013) (emphasis added); *see also* Kaminski, *supra* note 143, at 73 (explaining that this language could have the effect of preempting state regulations that apply to drones that are flying from state to state).

146. BENNETT, *supra* note 3, at 8 (arguing that the plan "presupposes at least some federal guidance with respect to 'private' privacy").

147. *Id.* at 12 ("The study should address the application of existing privacy law to UAS integration; identify gaps in existing law, especially with regard to the use and retention of personally identifiable information and imagery; and recommend next steps for how the FAA can address the impact of widespread use of UAS on individual privacy as it prepares to facilitate the integration of UAS into the national airspace." (quoting Explanatory Statement, Consolidated Appropriations Act of 2014, H.R. 3547, 113th Cong., Division L. at 6 (Jan. 14, 2014))).

148. *Id.* at 9. When selecting the sites that would be used for testing drones, FAA's administrator Michael Huetra justified the FAA's slow pace with privacy concerns, explaining that the concerns of privacy "necessitates an extensive review of the privacy impacts of the test site program." *Id.* (quoting Letter from Michael P. Huerta, Acting Administrator, Fed. Aviation Admin., to Michael Toscano, President and CEO, Ass'n for Unmanned Vehicle Systems Int'l (Sept. 21, 2012)).

which will serve as a basis for evaluating the privacy issues that will arise as drone use becomes more frequent. When the FAA publicized the test site selections, the announcement also issued privacy guidelines that the test site operators would be required to follow.[149] The agency emphasized that transparency, public involvement, and compliance with existing laws will be necessary as they research the privacy implications of expanded drone use.[150] The FAA's licensing power also will allow for transparency and notice to people whose privacy rights may be infringed.[151] These requirements issued for the test sites and licensing indicate that the FAA will at least temporarily be charged with the duty of ensuring privacy rights are not violated by the test site operators.[152]

2. Impeding Innovation

Today's drone experimenters are no different from inventors from the past who attempted to explore the world from a new point of view. This period of exploration should not be curtailed by unnecessary and limiting regulation. It would be better to see how drones and the technology evolves naturally, observing how people use drones and what problems arise as drones become more commonplace. The best way to do this is to allow existing state laws and common law doctrines to serve their remedial purpose.

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149. *Id.* at 10. Privacy considerations were required to be taken by the test site operators: to sign special contracts with the FAA that required them to keep records of all drone flights, to have a written plan for use and retention of drone-collected data, to maintain an openly available privacy policy, to annually assess compliance being assessed by the operator annually in a manner accessible to the public, to obey any applicable privacy laws, then existing or subsequently enacted, and to acknowledge that the FAA may suspend test site operations if the terms of the contract are not honored by the test site operator. *Id.*

150. JOINT PLANNING AND DEV. OFFICE, *supra* note 4, at 7.

151. Kaminski, *supra* note 143, at 67.

152. JOINT PLANNING AND DEV. OFFICE, *supra* note 4, at 4 (explaining that the agency did not seek to enter the privacy arena with the regulations, but instead seeks to "inform the dialogue among policymakers, privacy advocates, and the industry regarding broader questions concerning the use of UAS technologies in the NAS"); *see also* BENNETT, *supra* note 3, at 11–12 noting how Congress charged the FAA to undertake privacy research in this area).

3. Untested Legislation

Given that many of the laws enacted by the states remain untested, it is difficult to determine how effective any of this new legislation will be. Once the use of drones by private citizens becomes more commonplace, the new regulations on drones will be tested as to their effectiveness or legality. There is no consensus on which state laws will better regulate the use of drones or which law will withstand challenges.[153] The states are at best making educated guesses based on other precedents that do not specifically speak to the problems that could be caused by drone use.[154]

4. Violation of First Amendment Rights

Laws that restrict the ability of civilians to engage in legitimate information gathering will undoubtedly implicate First Amendment issues. The First Amendment protects an individual's right to privacy regarding speech, assembly, and religion.[155] Laws restricting ability in legitimate or essential information gathering will be made in the name of privacy but will still place restrictions on speech.[156] If drone restriction has a chilling effect on protected activities, that could be regarded as a violation of the fundamental right to free speech. The First Amendment's protection of speech and privacy is most at odds when applied to the media's information gathering rights. Some of these laws prohibit photos in public areas or objects and people in plain view.

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153. BENNETT, *supra* note 3, at 7 (stating that "[t]he uncertainty will frustrate the consensus about how best to regulate drones, snooping, and nongovernmental actors—and thus bolster states' prerogatives in the short run"); *see also* Kaminski, *supra* note 143, at 69–71 (explaining different state drone-related privacy laws).

154. BENNETT, *supra* note 3, at 7. "Two core assumptions inform modern drone policy: drones will allow for more aerial surveillance than other airborne platforms have to date, and more drones will soon find their way into more private hands." *Id.*

155. U.S. CONST. amend. I.

156. Kaminski, *supra* note 143, at 61.

5. Inconsistency Across the States

One of the benefits that accompanies state regulations is that the state government is best equipped to cater to the needs and values of the citizens in that state. But the inconsistency with regard to drone legislation across the states could present problems for operators as they attempt to comply with the various state regulations. Operators may not know of regulations of a state that they are visiting and could inadvertently violate a law, subjecting themselves to penalties. In sum, UAS could create "interesting jurisdictional issues for state courts."[157]

IV. COMMON LAW APPLICABILITY

Having analyzed the current efforts underway to regulate drone use, this Part argues that a common law approach may be superior, at least as a supplement, to a regulatory approach given the fast-changing nature of drone technology and use. "Privacy is one of the sensitive and necessary human values and undeniably there are circumstances under which it should enjoy the protection of law."[158] Specifically, this Part analyzes the common law torts of intrusion upon seclusion and trespass to argue that a tort approach to drone intrusions could prove to be a useful tool in the fast changing and complex world of emerging technology. The common law tort system is already in place as a regulatory tool and has the advantage of experience in application with regard to emerging technologies.[159] A tort approach may not eliminate all problems associated with regulating drones, but it can serve as an ancillary method of address privacy invasions by hobbyist operators as these arise. This approach would enable legislators to more carefully craft laws to address problems posed by drones, rather than creating solutions aimed to address hypothetical situations.

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157. Benjamin Kapnik, *Unmanned but Accelerating: Navigating the Regulatory and Privacy Challenges of Introducing Unmanned Aircraft into the National Airspace System*, 77 J. AIR L. & COM. 439, 464 n.156 (2012).

158. Leopold v. Levin, 259 N.E.2d 250, 254 (1970).

159. Andrew J. McClurg, *A Thousand Words Are Worth a Picture: A Privacy Tort Response to Consumer Data Profiling*, 98 NW. U. L. REV. 63, 97–98 (2003).

A. Intrusion Upon Seclusion

Samuel Warren and Louis Brandeis introduced the general idea that the law should protect the right to privacy in the publication, *The Right to Privacy*, in 1890.[160] Dean Prosser furthered the concept of invasion of privacy as a distinctive and independent right by explaining that there are four distinct types of invasions that can give rise to liability.[161] Intrusion upon seclusion is designed to protect the right to privacy by guarding our affairs from the "prying eyes and ears of others."[162] This is exactly why it is the most logical way to guard against the potential privacy violations as the law catches up with the technology.[163]

The second *Restatement of Torts* explains, "one who intentionally intrudes, physically or otherwise, upon the solitude or seclusion of another or his private affairs or concerns, is subject to liability to the other for invasion of his privacy, if the intrusion would be highly offensive to a reasonable person."[164] As the *Restatement of Torts* points out, a claim of intrusion upon seclusion has a few essential elements. The intrusion must be intentional for the plaintiff to state a cause of action. This element of the tort is important since it focuses on behavior, which will avoid any First Amendment issues that are likely to arise with state legislative ac-

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160. Interestingly, the authors viewed the protection of privacy as increasingly important as new forms of technology began to appear. *See* Samuel D. Warren & Louis D. Brandeis, *The Right to Privacy*, 4 HARV. L. REV. 193, 195 (1890) (citing to "recent inventions and business method" as reasons to secure a right to privacy).

161. Jeffrey F. Ghent, Annotation, *Invasion of Privacy by Radio or Television*, 56 A.L.R. 3d 386, § 2a (1974). These include: "(1) intrusion upon the plaintiff's seclusion or solitude, or into his private affairs; (2) public disclosure of embarrassing private facts about the plaintiff; (3) publicity which places the plaintiff in a false light in the public eye; and (4) appropriation, for the defendant's advantage, of the plaintiff's name or likeness." *Id.*

162. *See* Nader v. Gen. Motors Corp., 255 N.E.2d 765, 768 (N.Y. 1970) (finding that observance that is deliberate and malicious can give rise to a remedy); *see also* Jane Yakowitz Bambauer, *The New Intrusion*, 88 NOTRE DAME L. REV. 205, 230 (2012) (explaining the rationale behind the tort of intrusion upon seclusion).

163. *See Nader*, 255 N.E.2d at 768 (N.Y. 1970); *see also* Bambauer, *supra* note 162, at 230 (explaining further the rationale behind the tort of intrusion upon seclusion).

164. RESTATEMENT (SECOND) OF TORTS § 652B (1977).

tions.[165] Malicious intent is not always required in order to have an actionable invasion of privacy claim;[166] instead, some courts look at what the intruder did rather than what their purpose for the intrusion was.[167] The purpose of the operator of a drone and the actions taken by the drone operator should be a relevant inquiry when determining the culpability of the operator, further highlighting the applicability of the tort to drones.

A physical intrusion is not necessary for the tort to apply.[168] Courts have applied the tort to nonphysical intrusions, such as eavesdropping on private conversations and peering through windows.[169] Additionally, the comments to the *Restatement* stress that the tort protects against unwanted surveillance, even when there has been no trespass and the victim is unaware of the offensive conduct.[170] The significance of the torts application to nonphysical intrusions should not be understated. It shows that the tort can be adapted to apply to various situations in which a person's privacy has been invaded. Given the maneuverability and discrete characteristics of drones, the tort of intrusion upon seclusion should be applied to situations where an operator uses their drone to peer into the windows of homes or make recordings without the knowledge of the victim.[171]

A victim typically must be in a private place unless the intrusion involves access to matters that are not exhibited for public gaze.[172] The *Restatement* also notes that "there may be some matters about the plaintiff, such as his underwear or lack of it, that are

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165. Bambauer, *supra* note 162, at 230.

166. Love v. S. Bell Tel. & Tel. Co., 263 So. 2d 460, 466 (La. Ct. App. 1972).

167. *Id.*

168. RESTATEMENT (SECOND) OF TORTS § 652B cmt. b (1977). The tort can be committed through "the use of the defendant's senses, with or without mechanical aids, to oversee or overhear the plaintiff's private affairs, as by looking into his upstairs windows with binoculars." *Id.*

169. *See* Nader v. Gen. Motors Corp., 255 N.E.2d 765, 770 (N.Y. 1970) (holding that eavesdropping and peering through windows would obviously constitute an invasion of privacy); Hamberger v. Eastman, 206 A.2d 239 (1964).

170. RESTATEMENT (SECOND) OF TORTS § 652B cmt. b (1977).

171. Baugh v. Fleming, No. 03-08-00321-CV, 2009 WL 5149928, at *2 (Tex. App. Dec. 31, 2009) (permitting a claim based on videotaping through the window of a home).

172. RESTATEMENT (SECOND) OF TORTS § 652B cmt. c (1977).

not exhibited to the public gaze" which implies that it could be applied to drone operators, even if they are filming in a public place, if the filming is considered offensive.[173] Seclusion has also been found in public spaces if constant surveillance is used to track an individual.[174] Given the comments and court decisions that have found intrusions in a variety of situations, persistent recording of a location or tracking a person with a drone, even if done in a public place, may be actionable in some jurisdictions.

Additionally, this privacy tort does not require that information collected be disseminated to third persons, making it more widely applicable to a private citizen using their drone against another private citizen.[175] Courts instead examine the full extent of the defendant's behavior over a period of time in which the intrusion was taking place.[176] This analysis would be beneficial in the case against a drone operator, particularly if the conduct affected multiple people.

The tort of intrusion upon seclusion can be applied to wrongs committed by hobbyist drone operators without the problems that can result from forms of state legislation. The court in *Roach v. Harper*[177] stated, "[t]he common law is not a static but a dynamic and growing thing. Its rules arise from the application of

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173. *Id.*

174. Kramer v. Downey, 680 S.W.2d 524, 526 (Tex. App. 1984) (holding that incessant observations by a previous romantic partner, even though the defendant remained on public property to do so, was an intrusion that justified damages); Luken v. Edwards, No. C10-4097-MWB, 2011 WL 1655902, at *5 (N.D. Iowa May 3, 2011) (allowing an intrusion claim to proceed that was premised on the interception of phone conversations between the plaintiff and her counsel in the midst of a divorce proceeding).

175. *See* McDaniel v. Atlanta Coca-Cola Bottling Co., 2 S.E.2d 810, 817 (Ga. Ct. App. 1939) (stating that the general rule is that publication is not necessary to state a claim for intrusion); Hamberger v. Eastman, 206 A.2d 239, 242 (N.H. 1964) (finding that publication can impact the amount of damages awarded for the intrusion).

176. Biondich v. NBC Subsidiary (WMAQ-TV, Inc.), No. 1-09-2269, 2011 WL 9717470, at *3–6 (Ill. App. Ct. Jan. 21, 2011) (ruling against reporters who film plaintiffs in their homes after they objected).

177. Roach v. Harper, 105 S.E.2d 564, 566–68 (W. Va. 1958) (applying the tort of intrusion to a case in which a landlord had installed a listening device in the dwelling of a tenant to find that the landlord had intruded upon the tenant's privacy).

reason to the changing conditions of society."[178] Applying the tort of intrusion upon seclusion to a drone offense would reveal the specific problems that arise as drones enter the airspace. Additionally, this approach would not impede innovations and can be more readily adapted as the technology continues to change. This would enable policy makers to more carefully craft regulations that will address the issues, rather than creating solutions to an issue that has not yet become a problem. Intrusion can be modified by private agreements, which strongly resemble much of the state legislation language that the drone operator must obtain the property owners consent to operate a drone over their property, revealing the unnecessary nature of the state legislation.[179] By allowing a property owner to consent, the doctrine of intrusion can redefine what that particular owner objectively expects to be a reasonable invasion of their privacy.[180]

B. Aerial Trespass

Prior to the acknowledgement that privacy is a distinct right worthy of protection, courts had often protected the right to privacy under the "guise of property right."[181] The trespass doctrine has historically defended a property owner's right to exclude others from their land.[182] At common law, the space above and below a property was considered to belong to the owner. This is known as the *ad coelom* doctrine, short for the Latin phrase "*cuius est solum, eius usque ad coelum et ad infernos,*" meaning "to him to whom the soil belongs, belongs also to heaven and to the depths."[183] As William Blackstone explained, "no man may erect any building, or the like, to overhang another's land . . . . So that the word 'land' includes not only the face of the earth but everything under it, or over it."[184] The idea that an owner of land also has interest in the space above the land is reflected in modern sources as aerial tres-

178. *Id.* at 568.

179. Bambauer, *supra* note 162, at 254 (claiming that the First Amendment is not implicated with the use of the tort of intrusion).

180. *Id.*

181. Ghent, *supra* note 161.

182. Rule, *supra* note 5, at 175.

183. *See* Eric R. Claeys, *On the Use and Abuse of Overflight Column Doctrine*, 2 Brigham-Kanner Prop. Rts. Conf. J. 61, 61 (2013).

184. 2 WILLIAM BLACKSTONE, COMMENTARIES 18 (1766).

pass. The second *Restatement of Torts* states that "[f]light by aircraft in the air space above the land of another is a trespass if, by only if, (a) it enters into the immediate reaches of the air space next to the land, and (b) it interferes substantially with the other's use and enjoyment of his land."[185]

The Supreme Court rejected the traditional common law doctrine in the case of *United States v. Causby*, where the Court held that property rights extend only so far as needed for the person to use and enjoy their property.[186] The "enveloping atmosphere rule" announced in *Causby* established that landowners possess as much of the airspace above their property to which they can reasonably use and an invasion of this airspace is trespass subject to damages.[187] But there is no clear authority as to exactly how far this right extends, creating continued uncertainty regarding low-altitude airspace rights.[188] The *Causby* Court stated "the flight of airplanes, which skim the surface [of land] but do not touch it, is as much an appropriation of the use of the land as a more conventional entry upon it . . . . [I]nvasions of it are in the same category as invasions of the surface."[189] The language of this statement indicates that it would be reasonable to expand the aerial trespass tort doctrine to situations that involve the use of drones.

A great example of the aerial trespass doctrine in action involves overhanging encroachment situations. The common law's treatment of overhanging encroachments as a trespass is analogous

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185. *See* RESTATEMENT (SECOND) OF TORTS § 159(2) (1965).

186. *See* United States v. Causby, 328 U.S. 256, 260–61 (1946). The court rejects this doctrine stating that "[i]t is ancient doctrine that at common law ownership of the land extended to the periphery of the universe . . . [b]ut that doctrine has no place in the modern world. *Id.*

187. *See* Todd Janzen, *How a 1940's Chicken Farmer Case Answered: Who Owns the Sky?*, JANZEN AG LAW BLOG (Jan. 30, 2016), http://www.aglaw.us/janzenaglaw/2016/1/28/united-states-v-causby-the-1940s-chicken-farmer-case-that-will-impact-drone-law.

188. *See* Rule, *supra* note 5, at 169 (arguing for a more definite altitude to govern whether a drone has committed a trespass); *see also* Colin Cahoon, Comment, *Low Altitude Airspace: A Property Rights No-Man's Land*, 56 J. AIR L. COM. 157, 198 (1990). "With no definitive standard yet enunciated, and courts mixed in their approach to the question, landowners must still wonder just exactly what their property rights are to the airspace above their land." *Id.* at 198.

189. *Causby*, 328 U.S. at 264–65.

to drone operations over the land of another. "If a tree, building, or other structure affixed to the ground extends over the property and encroaches" on the airspace directly above another's land, "the law typically will enforce the right of a person to exclude this encroachment."[190] In many states, a property owner even has the right to trim the overhanging shrubbery or trees in the air above their land.[191]

"The common trespass law doctrine draws no limitations upon the character of the trespasser," so it can be applied in a variety of situations and circumstances.[192] Under traditional trespass doctrine, flight by an aircraft constitutes a trespass if it enters into the immediate reaches of airspace next to the land and interferes with the owner's use and enjoyment of the land.[193] Drones are far superior to traditional aviation technology that was examined by the courts in trespass doctrine cases, but courts have demonstrated that the common law can be adapted to new and emerging technologies. This is demonstrated through the development of the law with regard to the emergence of the radio,[194] the Internet,[195] and the telephone.[196]

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190. Rule, *supra* note 5, at 182.

191. *See, e.g.*, Macero v. Busconi Corp., 12 Mass. L. Rep. 521 (Super. Ct. 2000) (stating that the law in Massachusetts "recognizes a right to self-help by which a property owner can cut the limbs or branches of a tree that invade his property as long as such cutting is done at the property line").

192. *See* RESTATEMENT (SECOND) OF TORTS § 159 (1965); *see also* Oyegunle, *supra* note 33, at 384.

193. *See id.*; Geoffrey Christopher Rapp, *Unmanned Aerial Exposure: Civil Liability Concerns Arising from Domestic Law Enforcement Employment of Unmanned Aerial Systems*, 85 N.D. L. REV. 623, 645 (2009).

194. *See generally Radio Spectrum Allocation*, FED. COMM. COMMISSION, www.fcc.gov/encyclopedia/radio-spectrum-allocation (last visited Feb. 25, 2016) (describing basic modern law that governs the property rights related to the radio).

195. *See generally* Michael L. Rustad & Diane D'Angelo, *The Path of Internet Law: An Annotated Guide to Legal Landmarks*, 2011 DUKE L. & TECH. REV. 12 (2011) (providing a general history of the complex legal landscape surrounding the property interest related to the Internet).

196. *See generally* Navarra v. Bache Halsey Stuart Shields, Inc., 510 F. Supp. 831 (E.D. Mich. 1981) (finding that eavesdropping with a telephone is actionable).

Courts must engage in a "subjective and unpredictable" analysis as to whether the alleged trespass enters into the "immediate reaches" of the land and whether it "interferes substantially" with the landowner's use of the land.[197] When applying this principle to an alleged trespass committed by the use of a drone, a court could apply a different rule that views the drone as a projectile rather than an aircraft.[198] Courts have held that it is actionable trespass to fire projectiles and to fly an advertising kite through the air above land even though no harm to the land or to the possessor's enjoyment of it has occurred.[199] In sum, this tort would be implicated if a drone operator uses their drone close enough to the land of another and if it interfered with their enjoyment of land.[200]

V. CONCLUSION

Currently, drone regulation is in a constant state of modification as the technology is rapidly evolving. Legislation that is aimed at solving the problem of drone technology invading privacy is unnecessary, likely unconstitutional—and with regard to state legislative actions—runs the risk of preemption. Additionally, the states that have enacted legislation aimed at drones vary significantly in their application and breadth, leading to confusion among drone operators. The legislation and regulatory attempts at addressing hobbyist drones are untested, meaning their effectiveness is unknown. Common law existing tort claims of general applicability have been utilized for years by courts to address situations involving emerging technologies and to avoid the pitfalls of other regulatory efforts. Statutory solutions are likely to become outdated and obsolete, while common law tort causes of action are flexible enough to adapt as new uses for drones are discovered. For the foregoing reasons, privacy invasions committed by private, hobby-

197. Rule, *supra* note 5, at 170.

198. *Id.*

199. RESTATEMENT (SECOND) OF TORTS § 158 cmt. i. (1965) ("[I]n the absence of the possessor's consent or other privilege to do so, it is an actionable trespass to . . . fire projectiles . . . through the air above [the land], even though no harm is done to the land or to the possessor's enjoyment of it.").

200. For example, if an operator used their drone to video people lying by the pool in their backyard, this type of disruptive and interfering activity could be considered a trespass.

ist operators should be addressed by applying common law tort claims of intrusion upon seclusion and aerial trespass.