



# AT THE DIGITAL DOORSTEP

How Customers Use Doorbell  
Cameras to Manage Delivery Workers

**DATA &  
SOCIETY**

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# EXECUTIVE SUMMARY

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*At the Digital Doorstep* examines the consequences of two overlapping trends: first is the growing “gigification” of delivery work, accompanying the recent rise of e-commerce; second is the increasing popularity of networked doorbell cameras. By analyzing interviews with both delivery drivers and users of doorbell cameras, this report argues that while doorbell cameras are heavily marketed and described as tools for safety and security in the home, they are also near-constant tools of workplace surveillance for delivery workers. We identify a pattern of “boss behavior,” where doorbell camera users take on actions typical of managers, using this technology to monitor, instruct, and punish delivery workers.

The rise of boss behavior is occurring at the same time as the growth of platform-based delivery work, which deploys the now-familiar techniques of algorithmic management to direct a rolling population of ad hoc workers, scheduled at irregular hours on unpredictable routes with precarious job security and little to no federal labor protections. The risks of this work and the challenges of being algorithmically managed are sharpened by the increased use of doorbell cameras, which provide the possibility of an unseen and unknown audience at the doorstep. Workers often choose to perform various forms of retail service niceties while weighing customer satisfaction against delivery quotas in the apps that manage their labor.

In addition to addressing the misclassification of platform-based delivery workers, we argue that the growth of networked doorbell cameras is a crucial topic for labor advocates. Debates over privacy, and surveillance more generally, should consider the very real consequences this technology has on the working conditions of an already precarious workforce.

# INTRODUCTION

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It was a typical weekday for Cynthia, a Black woman from Durham, North Carolina, who was finishing her block delivering packages for Amazon Flex.<sup>1</sup> Today's route had brought her to an unfamiliar area of North Carolina, where long stretches of farmland separated each house, often a 15-minute drive apart. Feeling out of her element, Cynthia was relying heavily on her navigation system to locate each house. On one of her final deliveries, she found herself driving up a long road to reach the drop-off point on her Flex app. She pulled up to the house, parked, and looked down at her phone. She had made it. When she looked back up, she saw a man standing outside the door holding a shotgun. Two large dogs stood like sentinels on either side of him. Cynthia froze—she had not grown up around guns. She sat paralyzed in her front seat. She weighed her options. She could call driver support from the car, but it usually took at least fifteen minutes to be connected with someone, and she wasn't sure how they could help her. She could step on the gas and zoom back down the driveway, but she worried that would get her kicked off the Flex app, or worse, what if he shot at her car. Instead, she decided to hop out of her vehicle as quickly as possible. She wanted him to see her Amazon vest, hoping this would identify her as a delivery driver. She knew it would be dangerous to turn around and start rummaging through her backseat for his package; what if he thought she was looking for a weapon? She took a breath and stepped out of the car, calling to him, "I am here with your package." He paused, his face softened, and he set the gun to the side. He grabbed the package, thanked her, and added, "You should be careful around these parts."

Further South, in a small town outside of Tampa, Florida, a white woman named Sheryl was at her office when her phone buzzed with a notification from the SimpliSafe app. The app, which is connected to the doorbell camera mounted on her home, was alerting her that there was movement at the doorstep. Expecting an Amazon package, Sheryl opened the app to see if it was the printer paper she ordered. She watched through her phone as an Amazon driver shuffled through a trunk full of packages, grabbed one, and walked toward her doorstep. Before reaching the door, Sheryl saw him pause and kick the package "like a soccer ball."

Sheryl was annoyed to see her package thrown around. She reported the driver to Amazon, offering to share the footage from her doorbell camera. When asked if the item was damaged, Sheryl said it was not—it was printer paper. Despite this, she later recalled, "I was still going to report it because, what if next time I ordered an article that was fragile, and he did the same thing. It didn't really matter to me what was inside the package, it was the idea that the

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<sup>1</sup> Pseudonyms are used for all interviewee names and some details are obscured to preserve their anonymity.

package was not treated with respect.” Two days later, someone from Amazon responded to her complaint, telling her that three other customers had also submitted reports about this driver, and that the driver had been deactivated.

Sheryl lives in a sleepy neighborhood. She orders packages from Amazon and other e-commerce sites weekly, and bought a doorbell camera to protect these purchases. After seeing footage on YouTube of drivers mishandling packages, and reading about “porch pirates” on Facebook, Sheryl wanted a video doorbell for “an extra layer of protection.” Now, she uses the doorbell camera to watch the workers who deliver to her house. She explained, “I want to be able to see how my packages are being treated—if they’re being treated with respect or if they’re being kicked around.” Sheryl checks her doorbell camera through the app on her phone or computer five to seven times a day. When she is expecting a package, that number goes up. For Sheryl, the doorbell camera has changed her perception of her neighborhood and those who enter it: “Before the doorbell, I just figured that everybody was behaving like they should be, and after getting the doorbell, I realized that there are good drivers and bad drivers out there.”

Both of these stories illustrate how the doorstep is a contested space; it is at once private property and also,

*...the doorstep is a contested space; it is at once private property and also, for workers, a public, commercial space. For delivery drivers, this results in a frequent collision between the American ideals of private property and the business imperatives of doing a job.*

for workers, a public, commercial space. For delivery drivers, this results in a frequent collision between the American ideals of private property and the business imperatives of doing a job. These stories begin to illustrate how new technologies are used to mediate this space and the delivery work that takes place there. More and more, delivery workers are being dispatched by algorithms, and arriving at doorsteps surveilled by internet-connected doorbell cameras.

Our research began with the question: How are doorbell cameras transforming the doorstep? We wanted to understand how residents use and monitor these cameras, but more importantly, we wanted to know their impact on low-wage delivery workers who are routinely observed and recorded over the course of their daily work. How does this form of surveillance change labor conditions?

While this report offers insights into the changing nature of all forms of delivery work as a result of increased doorstep surveillance, it focuses on a subset of delivery drivers and a particular brand of home security camera. For the former, we focused on Amazon’s fleet of gig workers known as Flex drivers, who ferry Amazon packages in their own vehicles. And for the

latter, while there are many brands of home security cameras, we focused primarily on Amazon Ring because of its widespread popularity and its ownership by the e-commerce giant Amazon.<sup>2</sup>

This report investigates the changing relationships between corporations, workers, and customers in the retail industry as a significant share of retail shifts from brick-and-mortar establishments to the doorstep.<sup>3</sup> Drawing on interviews with delivery drivers and video doorbell users from across the United States, this report explores how surveillance designed to protect private property is used to manage the workforce outside of it.<sup>4</sup>

The New Dynamics of Delivery Work section of this report describes the role of Amazon's Prime membership program in setting a new standard for e-commerce delivery and Amazon's expanding on-demand fleet of delivery drivers. Drawing on ethnographic interviews with delivery drivers, we describe the often-overlooked challenges that this workforce experiences working on private property, and the unstated conditions of their labor. The next section, Doorstep Surveillance, traces a tradition of surveillance in retail and argues that privately owned doorbell cameras represent a new form of retail and worker surveillance. This new site of workplace surveillance is complicated by a history of private property surveillance—often racialized and capable of re-inscribing racial logics. In Boss Behavior, we draw from ethnographic interviews with doorbell users to argue that doorbell cameras enable a new form of “boss behavior.” We show how doorbell cameras and their connected platforms facilitate the monitoring, instructing, and punishing of delivery workers. In conclusion, the doorbell camera affords customers a new form of control over a low-wage workforce, one that mirrors that of a traditional manager.

Numerous technology scholars and journalists have already critiqued doorbell cameras—focusing on how they extend the police state and incentivize racist policing behavior on behalf of users.<sup>5</sup> We hope that our research builds on and contributes to this scholarly activist discussion by documenting and foregrounding a key actor regularly caught in these networks of digital surveillance, but one who has rarely entered into public conversations: the delivery worker.

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<sup>2</sup> Jack Narcotta and William Ablondi, “Video Doorbell Global Market Shares – May 2021.” *Strategy Analytics*, May 10, 2021, <https://www.strategyanalytics.com/access-services/devices/connected-home/smart-home/reports/report-detail/video-doorbell-global-market-shares-may-2021?slid=2043565&spg=1>.

<sup>3</sup> U.S. Department of Commerce, *Quarterly Retail E-Commerce Sales 2nd Quarter 2022*, Washington, D.C.: August 19, 2022, [https://www.census.gov/retail/mrts/www/data/pdf/ec\\_current.pdf](https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf).

<sup>4</sup> The design and research for this project began in October 2020. Fieldwork was conducted over the course of 10 months, from April 2021 to January 2022. Qualitative interviews were conducted with 20 delivery drivers and 20 doorbell camera owners from across the United States. While the majority of participating delivery drivers worked for Amazon Flex (n=14), we also interviewed drivers who had delivered with an Amazon Delivery Service Partner, Doordash, Instacart, Shipt, and Uber Eats. The majority of doorbell users owned a Ring camera (n=16), but some also owned Vivitar, SimpliSafe, and Wyze brand doorbell cameras. All of the fieldwork was conducted online, via phone or video conference software. Participants were recruited through a combination of online recruitment efforts like Craigslist advertisements and outreach to social media groups and through the Driver's Seat, a drivers' cooperative.

<sup>5</sup> See Dan Calacci, Jeffrey Shen, and Alex (Sandy) Pentland. “The Cop in Your Neighbor's Doorbell: Amazon Ring And The Spread of Participatory Mass Surveillance,” *Proc. ACM Hum.-Comput. Interact.* 6, CSCW2, Article 400 (November 2022): 52, <https://doi.org/10.1145/3555125>; Bridges, Lauren. “Infrastructural obfuscation: unpacking the carceral logics of the Ring surveillant assemblage.” *Information, Communication & Society* 24, no. 6 (2021): 830-849; Selinger, Evan, and Darrin Durant. “Amazon's ring: surveillance as a slippery slope service.” *Science as Culture* 31, no. 1 (2022): 92-106; Dell Cameron, “Everything Cops Say About Amazon's Ring Is Scripted or Approved by Ring,” *Gizmodo*, July 30, 2019, <https://gizmodo.com/everything-cops-say-about-amazons-ring-is-scripted-or-a-1836812538>; Drew Harwell, “Home-security cameras have become a fruitful resource for law enforcement—and a fatal risk,” *The Washington Post*, March 2, 2021, <https://www.washingtonpost.com/technology/2021/03/02/ring-camera-fears/>; Alfred Ng, “Ring's work with police lacks solid evidence of reducing crime,” *CNET*, March 19, 2020, <https://www.cnet.com/home/security/features/rings-work-with-police-lacks-solid-evidence-of-reducing-crime/>.

# THE NEW DYNAMICS OF DELIVERY WORK

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Layla arrives at the Amazon warehouse a few minutes before her designated start time. If she's late, Amazon will give her four-hour shift to another Flex driver. When the shift begins, Layla drives into the loading area where an Amazon worker rolls a cart of around 50 packages and envelopes to her car. The atmosphere in the warehouse is tense; Layla has roughly five minutes before someone starts yelling at the drivers to exit so that the next group of vehicles can enter. She scans the packages quickly and throws them in her trunk, knowing she will organize them once she exits. Package organization has taken Layla time to master. She recalls her first time, feeling overwhelmed by the various codes, numbers, and names on each item. Eventually, with some help from drivers' YouTube videos, she caught on, buying big plastic storage containers for her trunk, and sorting packages alphabetically by last name and package size. Once on the road, Layla has a single focus: moving as quickly as possible. When delivering on behalf of Amazon, time is not something drivers can afford to waste.

*In this way, platform delivery work comes with the familiar precarity of other gig labor, but adds an additional complication: the requirement to approach the doorstep of countless homeowners.*

Flex drivers are one example of a growing class of workers—delivery drivers—who are responsible for the convenience and speed of today's consumption habits. In the era of e-commerce, the delivery driver has become the new face of online retail. At the same time, delivery programs like Flex, DoorDash, and Instacart represent the “gigification” of delivery work—moving from regular employees with set schedules and familiar routes, to a rolling population of workers, using their own vehicles, with no set hours, unpredictable routes, and no employment protections. In this way, platform delivery work comes with the familiar precarity of other gig labor, but adds an additional complication: the requirement to approach the doorstep of countless homeowners.

While Amazon trucks and delivery workers are ubiquitous in today's neighborhoods, this was not always the case. In the early 2000s, retailers capitalized on the growth of online shopping, building web pages to supplement their brick-and-mortar outlets.<sup>6</sup> Despite this

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<sup>6</sup> Stephen Provost, *The Great American Shopping Experience: The History of American Retail from Main Street to the Mall* (Fresno: Craven Street Books, 2022), 275.

growth, shipping remained relatively expensive and could take over a week. Given the added cost and time associated with online purchases, brick-and-mortar outlets maintained a stronghold in retail.<sup>7</sup> However, retailers like Amazon and eBay, which had no physical stores, were imagining new models of delivery. As one former Amazon Prime executive told Vox, “At that time we did not know what form of e-commerce was going to take off. Was it going to be auction sites? Was it going to be subscription services? Or was it going to be sites with free shipping thresholds?” In 2005, Amazon gambled big on one of these, and announced their Prime membership program. Previously, Amazon had charged \$9.48 per item for two-day shipping, but with Prime, customers could get unlimited two-day shipping for a yearly membership fee of \$79, a move lauded as a decision that “raised the bar for convenience in online shopping.”<sup>8</sup>

The promise of two-day shipping provided an immediacy that, until then, could only be achieved by shopping at physical stores. In normalizing the expectation that shipping should be quick and cheap, Amazon redefined the terms of e-commerce fulfillment.<sup>9</sup> A year later, in an attempt to increase participation in Prime, Amazon introduced Fulfillment by Amazon (FBA), where the company would store and ship third-party sellers’ products.<sup>10</sup> The FBA program enabled sellers to adhere to Amazon’s two-day delivery standards, qualifying them for inclusion in Amazon’s growing Prime catalog.<sup>11</sup> These changes contributed to the rapid expansion of Amazon’s business along with the overall rise of online shopping.

The promise of unlimited two-day shipping came with a huge infrastructural challenge for Amazon. In order to support the new deluge of rapid deliveries, Amazon began building their own massive logistics system.<sup>12</sup> In 2015, Amazon assembled a workforce of on-demand delivery drivers through a new program called Amazon Flex.<sup>13</sup> Through Flex, anyone over 21 years of age with a drivers license and car can earn \$18 to \$25 per hour delivering Amazon packages.<sup>14</sup>

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<sup>7</sup> “Total and e-commerce value of U.S. Retail Trade Sales from 2000 to 2021,” Key Figures of E-Commerce, Statista, last modified February 2022.

<sup>8</sup> Jason Del Rey, “The making of Amazon Prime, the internet’s most successful and devastating membership program,” Vox, May 3, 2019, <https://www.vox.com/recode/2019/5/3/18511544/amazon-prime-oral-history-jeff-bezos-one-day-shipping>.

<sup>9</sup> West, Emily. *Buy Now: How Amazon Branded Convenience and Normalized Monopoly*. (Cambridge: MIT Press, 2022), 45–7.

<sup>10</sup> “Fulfillment by Amazon,” Amazon News, Amazon, April 2, 2018, <https://www.aboutamazon.eu/news/innovation/fulfillment-by-amazon#:~:text=Launched%20in%202006%2C%20Fulfilment%20by%20of%20sellers%20around%20the%20world>.

<sup>11</sup> Del Rey, “The making of Amazon Prime.”

<sup>12</sup> Brad Stone, *Amazon Unbound: Jeff Bezos and the Invention of a Global Empire*, (New York: Simon & Schuster, 2021).

<sup>13</sup> While over 2.9 million people had downloaded the Amazon Flex app as of 2021, Flex is just one part of Amazon’s logistics ecosystem. Over the past two decades, Amazon logistics has ballooned to include a fleet of independently owned small delivery companies (Delivery Service Partners) and a bevy of ships and planes. In 2020, Amazon held 21 percent of market share of total US package delivery, the third largest volume of delivery behind UPS (24 percent), and USPS (38 percent). While there are no reliable statistics for exactly what percentage of its own packages Amazon delivers through its logistics network, a CNBC article reported Amazon shipped 72 percent of its own packages in 2021. See: Max Garland, “Amazon Logistics now ships more US parcels than FedEx: Pitney Bowes,” *Retail Dive*, October 20, 2021, <https://www.retaildive.com/news/amazon-logistics-volume-fedex-ups-postal-service-pitney-bowes/608518>; Katie Schoolov, “Amazon is making its own containers and bypassing supply chain chaos with chartered ships and long-haul planes,” *CNBC*, December 4, 2021, <https://www.cnb.com/2021/12/04/how-amazon-beats-supply-chain-chaos-with-ships-and-long-haul-planes.html>.

<sup>14</sup> Greg Bensinger, “Amazon Taps ‘On-Demand’ Workers for One-Hour Deliveries,” *The Wall Street Journal*, September 29, 2015, <https://www.wsj.com/articles/amazon-taps-on-demand-workers-for-one-hour-deliveries-1443499263>.



In a model borrowed from Uber and other platform-based companies, Flex drivers are independent contractors without a formal employment contract. Instead, their relationship with Amazon is governed by Independent Contractor Terms of Service that they must accept in order to drive. Flex drivers do not receive overtime pay, paid sick leave, unemployment insurance and most other workplace protections that traditional employees enjoy.<sup>15</sup> As researchers Maya Pinto and Rebecca Smith with the National Employment Law Project have detailed, classifying workers as independent contractors allows companies to shift the costs of doing business onto their workers.<sup>16</sup> This includes costs like vehicle maintenance and health insurance, and ebbs and flows in demand. As such, the risk and unpredictability once assumed by companies has become the worker's responsibility.<sup>17</sup>

Gig workers, including Flex drivers, are sold on the promise of flexibility, independence, and freedom. Amazon tells Flex drivers that they have complete control over their schedule, and can work on their terms and in their space.<sup>18</sup> Through interviews with Flex drivers, it became apparent that these marketed perks have hidden costs: drivers often have to compete for shifts, spend hours trying to get reimbursed for lost wages, pay for wear and tear on their vehicle, and have no control over where they work.<sup>19</sup>

Like many gig workers, Layla sees herself as her own boss. For Layla, choosing when to work allows her to attend to her daughter who has a disability. For the two years following the birth of her child, Layla crammed her schedule with delivery shifts in an attempt to cobble together a full-time job. During this time she drove for nine different gig platforms. Today, the only platform she routinely works for is Flex. In contrast to other delivery apps where a low base pay means drivers have to bank on customer tips, Layla thinks Flex provides the most acceptable going-rate per shift. Despite benefiting from the flexibility, Layla says there are contradictions with the way Amazon treats Flex drivers. "They want the benefit of you being an independent contractor, not an employee, but yet, they want you to do things that they only really have the right to ask you to do if you were an employee." In her view, this includes Amazon's ability to control essentially all aspects of a Flex driver's job, including setting a driver's route, delivery load, and determining which shifts are visible to them.

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<sup>15</sup> Martin, Mary. "When Flexibility Sacrifices Security: An Analysis of Amazon's Flex Program." *New Eng. L. Rev.* 54 (2019): 131.

<sup>16</sup> Smith, Rebecca, and Maya Pinto, "Rewriting the Rules: Gig Companies' Drive for Labor Deregulation," In *Beyond the Algorithm: Qualitative Insights for Gig Work Regulation*, ed. Deepa Das Acevedo. (Cambridge: Cambridge University Press, 2020), 189–207.

<sup>17</sup> Maya Pinto, *How the 'Coalition for Workforce Innovation' is Putting Workers' Rights at Risk*, (National Employment Law Project, 2022), <https://s27147.pcdn.co/wp-content/uploads/The-Truth-About-CWI-Report.pdf>.

<sup>18</sup> "Why Flex," Amazon Flex, accessed September 15, 2022, <https://flex.amazon.com/why-flex>.

<sup>19</sup> A 2022 survey by software company Circuit found that half of the delivery drivers surveyed used their own vehicles for work. They also found that 36.2% of drivers skipped their breaks and 35% were often unable to complete their delivery routes: "Expecting too much? Only 2 out of 3 package delivery drivers complete their daily route," Circuit Blog, March 14, 2022, <https://getcircuit.com/route-planner/blog/package-delivery-drivers-irl>. See also Ben Zipperer et al., *National survey of gig workers paints a picture of poor working conditions, low pay*, (Economic Policy Institute, 2022), <https://www.epi.org/publication/gig-worker-survey/>.

Most gig workers—Flex drivers included—are largely managed by an application, a practice known as algorithmic management.<sup>20</sup> Algorithmic management controls a workforce through a combination of data collection, worker surveillance, and automated decision-making.<sup>21</sup> While aspects of algorithmic management are present in many industries and workplaces, labor platforms rely heavily on this method to control large, dispersed, and asynchronous workforces. Other delivery platforms such as Uber Eats, Doordash, and Instacart use algorithmic management to, among other activities, assign and evaluate drivers' work.<sup>22</sup> This tech-mediated management system allows gig companies to distance themselves from hands-on administration, bolstering their claim that their workers are independent contractors.<sup>23</sup> As one driver told us, "The app is our supervisor and boss...It's the one who tells us when we're getting paid, how much we're getting paid...if your rating goes down or up...so there's not really anybody."

Notably, Flex drivers receive their performance evaluations directly through the Flex app. There are four rating classifications: "fantastic," "great," "fair," and "at risk,"<sup>24</sup> reported across five areas: On-Time Arrival, On-Time Cancel, Delivery Completion, On-Time Delivery, and Delivered and Received.<sup>25</sup> Scores for each category are based on a combination of data collected from the Flex app (such as when a driver checks-in for their block and the time stamp associated with when drivers mark a package as delivered) and customer reviews, which Amazon customers can complete after delivery.<sup>26</sup> The Flex app combines these categories into a single score—a "standing"—which summarizes a driver's status. A driver's standing can be quite significant. Amazon awards points to those with high standings, which can unlock "Flex Rewards" such as preferred scheduling priority.<sup>27</sup> At the same time, low standing can place drivers at risk of deactivation—the gig equivalent of firing. No delivery workers we spoke with knew how long remaining "at risk" would result in deactivation or a drop from one category to the next.

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<sup>20</sup> Min Kyung Lee et al. "Working with machines: The impact of algorithmic and data-driven management on human workers." In *Proceedings of the 33rd annual ACM conference on human factors in computing systems*, (April 2015): 1603–1612, <https://dl.acm.org/doi/10.1145/2702123.2702548>; Aneesh Aneesh. "Global Labor: Algorocratic Modes of Organization." *Sociological Theory* 27, no. 4, (2009): 347–70, <https://journals.sagepub.com/doi/10.1111/j.1467-9558.2009.01352.x>; Mary Gray and Siddarth Suri, *Ghost Work: How to Stop Silicon Valley from Building a New Global Underclass*, (Boston: Houghton Mifflin Harcourt, 2019).

<sup>21</sup> Jeremias Adams-Prassl, "What if your boss was an algorithm? Economic Incentives, Legal Challenges, and the Rise of Artificial Intelligence at Work," *Comparative Labor Law & Policy Journal* 41, no. 1 (2019): 123, <https://ssrn.com/abstract=3661151>.

<sup>22</sup> Kathleen Griesbach, Adam Reich, Luke Elliott-Negri, and Ruth Milkman. "Algorithmic control in platform food delivery work." *Socius* 5, (2019): 1–15, <https://doi.org/10.1177/2378023119870041>.

<sup>23</sup> Katherine C. Kellogg, Melissa A. Valentine, and Angele Christin, "Algorithms at Work: The New Contested Terrain of Control," *Academy of Management Annals*, Vol 14, No 1: 366–410 (2020); Veena Dubal, "The new racial wage code." *Harvard Law and Policy Review* 15, (2020): 511, <http://dx.doi.org/10.2139/ssrn.3855094>.

<sup>24</sup> "FAQ," Amazon Flex, accessed August 5, 2022, <https://flex.amazon.com/faq>.

<sup>25</sup> Ibid. See also Spencer Soper, "Fired by Bot at Amazon: 'It's You Against the Machine,'" *Bloomberg*, June 28, 2021, <https://www.bloomberg.com/news/features/2021-06-28/fired-by-bot-amazon-turns-to-machine-managers-and-workers-are-losing-out>.

<sup>26</sup> As of September 2022, following a delivery, customers are presented with an opportunity to mark a delivery as "great" or "not so great."

<sup>27</sup> Amazon Flex, "FAQ."

These reductive performance metrics fail to provide a holistic depiction of a driver's work. Based on our interviews, it was clear that ratings often do not account for circumstances beyond a worker's control, and frequently incorrectly or inappropriately dock a worker for extenuating circumstances. One driver summarized this phenomenon: "When you're late, it's usually...not within your control. There are all these things that put you in a late position that you can't do anything about and yet you get dinged for it."

Flex ratings also produce a fundamental tension: attempting to capture both delivery speed as well as customer satisfaction. For drivers, these two measures can be in direct competition. For example, a customer may ask a driver to wait five minutes for her to return home to sign for a package. However, if the

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driver is at risk of delivering packages late, they may decline, resulting in a poor customer review. As such, behavior at the doorstep can play an important role in the evaluation of a driver's performance and ultimately, their ability to continue working for Flex. One driver noted that oftentimes "you get dinged for doing the right thing" and that "no matter what, it's the driver's fault." Another explained, "There's no guidelines. It's basically what the customer

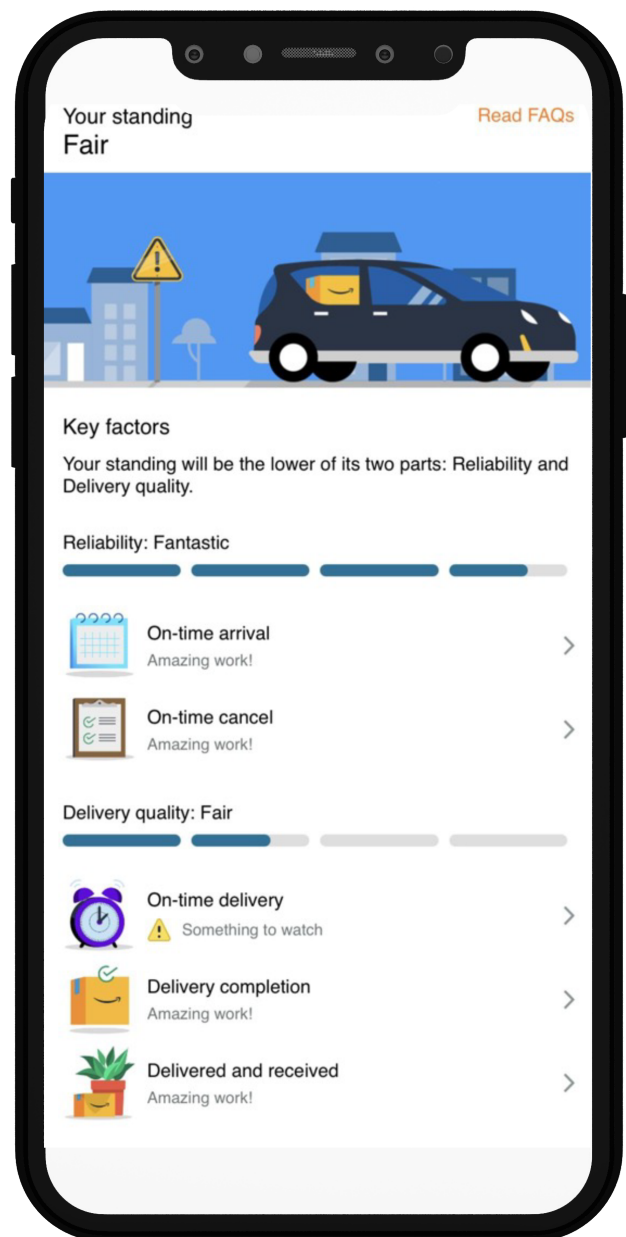


Figure 1: Screen shot of Flex app showing worker standing, 2021.  
Source: <https://vocal.media/journal/what-s-it-like-to-be-an-amazon-flex-delivery-partner>

wants, the customer gets...Amazon is very customer-centric.” All of these comments are consistent with previous research that has documented how ratings in app-based work normalize worker self-discipline in the name of rating maximization.<sup>28</sup>

If management by metrics is a familiar feature of other forms of gig work, the algorithmic management of delivery adds another complication: workers are dispatched to unpredictable and unfamiliar addresses every time they work. Flex’s marketing stresses the freedom of this type of work—you’re in your own car, listening to your own music, on your own schedule. The website reads, “Delivering packages means you have the freedom to really be yourself” and “You own the delivery experience.”<sup>29</sup> But this portrayal omits a significant portion of the job, which is actually spent at strangers’ front doors. While FedEx and UPS drivers often have set schedules within a particular area, Flex drivers can work whenever a block is available, and—while they can select which facility to pick up from—drivers are assigned different routes each time, making it impossible to know ahead of time where and how far one will be traveling.<sup>30</sup> As one driver told us, “the most challenging thing is that you just don’t know what you’re signing up for. You just show up and you get what you get and that’s it.”

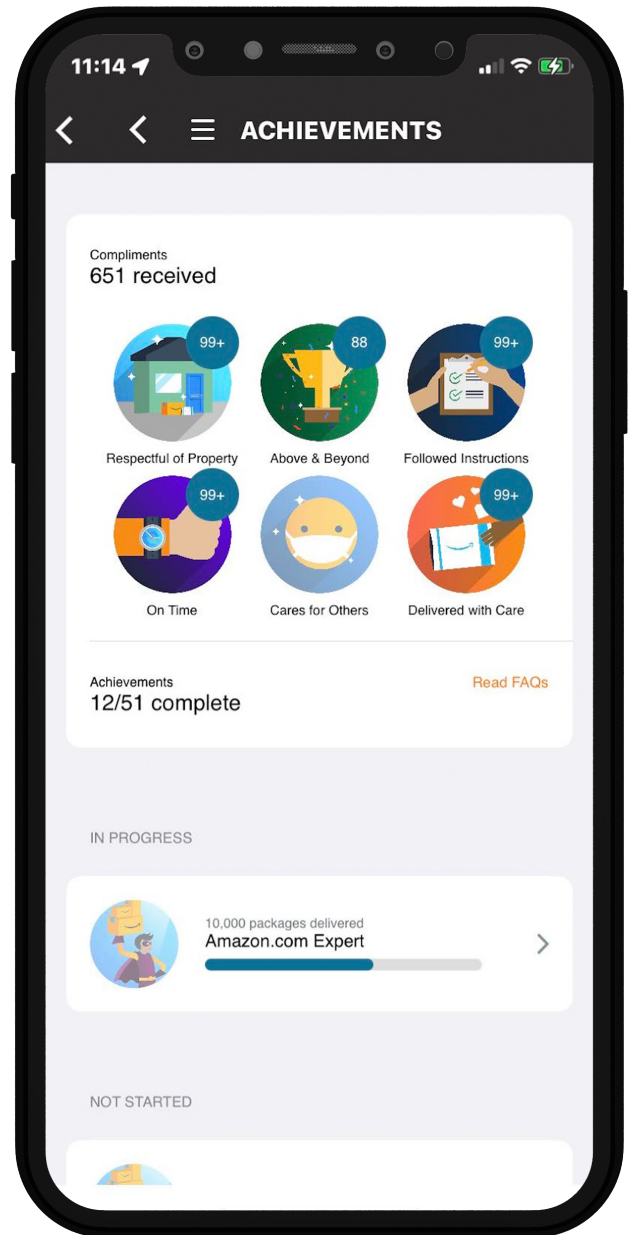


Figure 2: Screen shot of Flex driver app showing compliments from customers, September, 2022. Source: Amazon Flex Facebook Group.

<sup>28</sup> Ngai Keung Chan, “The Rating Game: The Discipline of Uber’s User-Generated Ratings,” *Surveillance & Society* 17, no. 1 (2019), <https://doi.org/10.24908/ss.v17i1/2.12911>. See also Alex Rosenblat, Karen Levy, Solon Barocas, and Tim Hwang, *Discriminating Tastes, Customer Ratings as Vehicles for Bias*, (New York: Data and Society, 2016) 7, <https://datasociety.net/output/discriminating-tastes-customer-ratings-as-vehicles-for-bias/>.

<sup>29</sup> Amazon Flex, “Why Flex.”

<sup>30</sup> Jenny Powers, “I’m a UPS driver. I’m paid well and like the solitude, but management still makes me want to quit most days,” *Business Insider*, February 10, 2022, <https://www.businessinsider.com/im-a-ups-delivery-driver-what-my-job-is-like-2022-2>; “How Do Couriers Like FedEx Plan Their Routes?,” *Routific*, August 13, 2018, <https://blog.routific.com/how-do-experts-like-fedex-plan-delivery-routes>; Thomas Black, “FedEx Ground Delivery Becomes a Road to Riches for Contractors,” *Bloomberg*, August 27, 2021, <https://www.bloomberg.com/news/articles/2021-08-27/fedex-fdx-ground-delivery-becomes-road-to-riches-amid-ecommerce-boom?leadSource=uverify%20wal>.

The changing physical landscape makes each work environment unpredictable for delivery drivers. Drivers described navigating to rural houses with muddy and winding driveways, gated communities with staffed security points, maze-like apartment complexes, and expansive trailer parks. As a consequence, workers sometimes drive slowly to find the right house or double-back to an overlooked entrance, driving patterns that highlight their unfamiliarity with the area and can make them particularly visible to neighbors. The majority of drivers we interviewed felt that rural deliveries posed the greatest number of challenges, both for safety and logistics. Drivers spoke of long driveways, insufficient lighting, and customers unaccustomed to having visitors, often making interactions more intense and uncomfortable.

As one driver described, “When I go to rural areas, people look at you kind of shifty because they’re not expecting a random car to be in their driveway.” Another driver told us he feels it’s “very dangerous at night in the rural area.” Describing these deliveries he said: “When your driveway is a mile long and you can’t see the house from the driveway...and it’s unsafe to park your vehicle at the end of the driveway and walk because you don’t know what’s up there...it isn’t worth it...That’s an accident waiting to happen.” Another driver described an unnerving rural delivery: “There was one house I went to that was two miles off of the main road. So I had to drive down this one-lane rock driveway...and you get back there and it’s kind of like, if they decided to abduct you, there’s nothing anyone can do because there’s literally no signal back there.”

*The changing physical landscape makes each work environment unpredictable for delivery drivers.*

This unpredictability can have hidden risks for delivery workers. A repeated concern was front yards protected by dogs. One driver we spoke with was bitten by a dog on two separate occasions. After he reached out to Amazon to confirm the dogs had their shots, they never followed up. Some workers were nervous when approaching homes with “Beware of Dog” and “Private Property” signs. Another driver shared their story of being treated as an intruder rather than a worker: “I had one guy who hadn’t realized his wife had ordered food, and he came to the door with a gun in his pocket...he answered the door a little aggressively, and had the gun very apparent in his front belt strap.”

In such circumstances, some drivers mark the delivery as unsafe in the Flex app and return the package to the warehouse. Amazon claims that such reports don’t affect their standing,<sup>31</sup> but drivers noticed something else in practice: “I have noticed that if you don’t actually follow through with the delivery, your score will go down a little bit. That’s why a lot of us just try to deliver everything and try to jump through hoops...and do as much as we can to

get it delivered so our score doesn't go down." In the face of a potentially risky delivery and the lack of support from Amazon, drivers described carrying pepper spray, flashlights, and tasers during shifts. Others said they avoid taking nighttime shifts entirely.

This pattern of work does not take into account the racialized dimension of public and private spaces inherent to many American neighborhoods.<sup>32</sup> In our interviews, drivers of color spoke openly about the anxiety that comes with delivering in predominantly white neighborhoods. Compared to the white delivery drivers we interviewed, drivers of color spoke more reflectively and at greater length about experiences of being watched during shifts and having distinct feelings of otherness. Specifically, drivers of color were acutely aware of their presence in a neighborhood, often noting that in predominantly white communities they felt they were being monitored by its residents. One Black driver described feeling unsafe because of "the way the people out there are looking at me, because I'm a Black person in a high-class neighborhood." This particular driver described getting yelled at: "They said that I should not be in their neighborhood, that I should get the fuck out of there." Shaken by this experience, he stopped delivering for Flex for a few weeks, feeling he needed a break for his mental health.

*The doorstep is both a workplace and a stranger's private property, spaces which denote different codes of conduct.*

Another Black driver, after acknowledging the challenges of rural deliveries, said that, despite this, he prefers rural routes because he interacts with fewer people, which means fewer awkward interactions. "I tend to get some weird looks, especially if I have something hanging around my head to take up the sweat or if I'm standing trying to figure out which house is which...there are times where I feel like I'm an attraction." One Latinx driver described her experience: "There were times where people would just look at me like 'Who are you?'... They will stare or they'll come out sometimes and just look around."

The feeling of standing out is experienced, on some level, by all delivery drivers because they are transient visitors in neighborhoods. Our research with drivers revealed that when entering neighborhoods as outsiders—regardless of race—drivers are subjected to the norms of that space. For app-based delivery workers, their workplace is not a static location, but

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<sup>31</sup> Amazon Flex, "FAQ."

<sup>32</sup> The United States has a long history of racism in housing, from race-restrictive covenants and zoning ordinances to discriminatory lending practices and violence against Black people in white neighborhoods. Throughout the decades, whites have viewed integration as a threat to their social and economic status, a sentiment reinforced by the real estate industry which proclaimed that property value would decline if Blacks moved into a white neighborhood. See: Meyer, Stephen Grant. *As long as they don't move next door: Segregation and racial conflict in American neighborhoods*. Rowman & Littlefield, 2000; Michelle Adams, "The Unfulfilled Promise of the Fair Housing Act," *The New Yorker*, April 11, 2018, <https://www.newyorker.com/news/news-desk/the-unfulfilled-promise-of-the-fair-housing-act>.

constantly changing neighborhoods, each with its own unpredictable terrain and culture. The doorstep is both a workplace and a stranger's private property, spaces which denote different codes of conduct. As the next section will detail, residents often seek to control that space and the conduct of those in it by monitoring their home, often through technology.

# DOORSTEP SURVEILLANCE

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Delivery work, regardless if one is driving one's own car or a company issued vehicle, is often highly surveilled. UPS trucks, for example, often have driver-facing cameras that watch for distracted driving and outward facing cameras to capture traffic incidents.<sup>33</sup> These vehicles also use GPS and sensors to monitor braking, idle time, and even seatbelt use.<sup>34</sup> Additionally, in 2021, Amazon began installing AI-powered cameras in Amazon-branded delivery vans, which drivers and privacy activists were quick to criticize as invasive and error-prone.<sup>35</sup> Once the delivery worker has exited their vehicle, handheld devices capture the speed at which packages are delivered. According to some drivers who work for an Amazon delivery service partner, their dispatcher will send them texts if they aren't moving fast enough through their route. Flex drivers, who use their personal vehicles and phones, are similarly surveilled; cell phones can track a worker's location, monitoring them as they move along their delivery route. Once at the doorstep, however, driver behavior cannot be fully captured by the app.

Yet, what happens at the doorstep is increasingly important for workers, companies, and residents. For many, the modern locus of retail is now the doorstep, where boxes pile up, waiting to be shuffled inside. As a result, the doorstep has surfaced as a new physical locale of consumption—the threshold at which purchased products become personal property. It is in this space of consumption that a new technology has entered the equation: the networked doorbell camera. Internet-connected, with motion sensors, audio and video feeds piped directly to smartphone apps, and connected to associated social media platforms, the modern doorbell camera creates a new paradigm of home surveillance—a tool that customers can wield to monitor their property, including the boxes and packages that are delivered there.

*...the doorstep has surfaced as a new physical locale of consumption—the threshold at which purchased products become personal property.*

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<sup>33</sup> Matt Leichenger, "UPS Is Installing Surveillance Cameras in Our Trucks, but Not Air Conditioning," *Jacobin*, August 5, 2022, <https://jacobin.com/2022/08/ups-workers-surveillance-air-conditioning-dangerous-conditions-heat>; Teamster Voice, "UPS Installs On-Truck Surveillance Cameras," Teamsters for a Democratic Union, July 20, 2021, [https://www.tdu.org/ups\\_installs\\_surveillance\\_cameras](https://www.tdu.org/ups_installs_surveillance_cameras); Michael Sainato, "UPS drivers push for air conditioning as temperatures soar: 'People are dropping weekly,'" *The Guardian*, August 8, 2022, <https://www.theguardian.com/us-news/2022/aug/08/ups-drivers-union-heat-temperatures-climate-crisis>.

<sup>34</sup> "A truck full of sensors," *Tempest*, May 11, 2021, <https://www.tempestmag.org/2021/05/big-brother-is-watching-okc-ups-delivery-drivers/>; Chris Welch, "UPS now lets you track packages for real—on an actual map," *The Verge*, May 12, 2016, <https://www.theverge.com/2016/5/12/11668602/ups-follow-my-delivery-map-tracking-now-available>; Ed Sperling, "What's Deep Inside Big Brown's Trucks," *Forbes*, June 7, 2010.

<sup>35</sup> Lauren Kaori Gurley, "Amazon's AI Cameras Are Punishing Drivers for Mistakes They Didn't Make," *Vice*, September 20, 2021, <https://www.vice.com/en/article/88npjv/amazons-ai-cameras-are-punishing-drivers-for-mistakes-they-didnt-make>; Jay Stanley, "Amazon Drivers Placed Under Robot Surveillance Microscope," ACLU, March 23, 2021, <https://www.aclu.org/news/privacy-technology/amazon-drivers-placed-under-robot-surveillance-microscope>; Annie Palmer, "Amazon is using AI-equipped cameras in delivery vans and some drivers are concerned about privacy," *CNBC*, February 3, 2021, <https://www.cnn.com/2021/02/03/amazon-using-ai-equipped-cameras-in-delivery-vans.html>.



Marketed as an essential home and neighborhood security tool, doorbell cameras are now a ubiquitous feature in neighborhoods across the United States. The devices are commercially available and relatively simple to install. Some major home developers such as Lennar Homes have even formed partnerships with smart doorbell makers to incorporate this technology into the new wave of digitally connected smart homes.<sup>36</sup> One industry survey found that doorbell cameras are a standard feature in 32% of new homes, while another found that 7.9 million video doorbells were sold in 2020.<sup>37,38</sup> Amazon, of course, has their own brand—the Ring doorbell—a rebranded version of the “Doorbot” which the company purchased for \$839 million in 2018.<sup>39</sup> Under Amazon’s ownership, Ring cameras have become the leading video doorbell on the market; of the 7.9 million cameras sold in 2020, an estimated 17.9% of them were Ring.<sup>40</sup>

Our interviews with doorbell owners confirmed that users see these cameras as a safety and security tool. Almost all the doorbell owners we interviewed believe this technology helps protect them and their property. As one user said, “I wanted some protection [to see] who’s coming up to our door...it is for security and a deterrent for anybody thinking about snatching all our Amazon boxes.” For doorbell users, an important feature of smart cameras is the ability to detect movement and notify them of activity. By announcing and recording a stranger’s presence, doorbell cameras make people hyper-visible to the resident. As one user told us, “I think it does provide some peace of mind in terms of being able to see who’s walking through your yard. And living in the suburbs nine times out of ten it’s the mailman...It gives you this separation where you can see them and talk to them but not have to open the door.” Whenever motion occurs outside their door—be it a falling tree branch, lost dog, a neighbor, or a delivery worker—the owner is sent a notification and can view the live stream directly from the app.

Doorbell cameras offer more than just the ability to observe what is happening outside the door. The networked aspect of these cameras can be a selling point for users. Within the Ring app is a geographically gated social media platform called Neighbors (which can also be accessed by users who don’t have a doorbell camera). On Neighbors, users are able to easily share recorded footage from their doorbell cameras to neighborhood message boards that draw them further into the act of surveillance. Amazon markets Neighbors as the modern-day neighborhood watch; the slogan is, “When communities work together, safer neighborhoods become a reality.”<sup>41</sup>

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<sup>36</sup> Michael Brown, “Ring and Home Builder Lennar Homes are Collaborating on New Smart Homes,” *TechHive*, February 2, 2021, <https://www.techhive.com/article/579182/ring-and-home-builder-lennar-homes-collaborating-on-new-smart-homes.html>.

<sup>37</sup> Novid Parsi, *Ring Helps Drive More Homebuilders into Smart Tech, Security, Sales and Integration*, Utopia Construction, August 21, 2021, <https://constructutopia.com/sites/utopia/files/2021-08/2021%20Utopia%20Smart%20Home%20Technology%20Survey%20-%20Final%20Report%20Download.pdf>.

<sup>38</sup> Jack Narcotta and William Ablondi, “Video Doorbell Global Market Shares – May 2021,” *Strategy Analytics*, May 10, 2021, <https://www.strategyanalytics.com/access-services/devices/connected-home/smart-home/reports/report-detail/video-doorbell-global-market-shares-may-2021?slid=2043565&spg=1>.

<sup>39</sup> “Amazon.com Inc, Annual Report, For the Fiscal Year Ended December 31, 2020” *United States Securities and Exchange Commission*, <https://www.sec.gov/Archives/edgar/data/1018724/000101872421000004/amzn-20201231.htm>.

<sup>40</sup> Jack Narcotta and William Ablondi, “Doorbell Market Shares.”

<sup>41</sup> Ring, accessed September 15, 2022, <https://ring.com/neighbors>.

Ring is also compatible with other Amazon devices like Alexa and Echo, making it part of a larger suite of connected home technologies. Through these products, media scholar Emily West argues that Amazon sells “surveillance as a service.” As West explains, “Amazon is on the leading edge of selling products and services consumers can use to conduct surveillance on their own domestic spaces.”<sup>42</sup> The growing popularity of Ring and other smart home devices has normalized home and neighborhood surveillance in the name of safety and security. As another doorbell owner put it, “Everybody has doorbells, security cameras...Everybody feels like they can’t trust people. I know I feel that way for sure.”

While the doorbell camera is a modern technology, the collective surveillance of property and neighborhoods has a long history. Neighborhood watches emerged in the 1960s in an attempt to crowdsource information to prevent crime—but not all forms of neighborhood surveillance are the same. One of urban theorist Jane Jacobs’s insights from her 1961 book, *The Death and Life of Great American Cities*, is the concept of “eyes on the street.” Jacobs believed that communities could naturally look after one another and maintain order and safety if residents were provided the physical infrastructure to aid them in seeing and being seen by one another. Jacobs was critiquing the movement to “renew” communities, often by limiting street activity and breaking up urban areas deemed blighted and dangerous. Jacobs advocated for dense urban areas and argued that these areas were kept safe by street activity, not law enforcement or technology.<sup>43</sup> But Jacobs’s concept of “eyes on the street” has been distorted. During the same era, law enforcement agencies began promoting a more punitive iteration of Jacobs’s concept, creating formal neighborhood watch groups. Local sheriffs and police departments recruited residents to form neighborhood groups that would specifically watch out for and report crimes. These groups often met regularly to discuss community safety issues and became the liaison between law enforcement and a community.<sup>44</sup>

For Jacobs, the point was that in an interconnected community, people lived their lives on the street—everyone became equally visible, and therefore accountable. This is, in many ways, the opposite of neighborhood *surveillance*, where residents are physically

*Doorbell cameras and social media platforms are technical extensions of these previous neighborhood separation and surveillance efforts. Cameras and proximity-based social media platforms encourage residents to collectively watch and share on platforms in real time—while absent from the spaces being surveilled.*

<sup>42</sup> Emily West, “Surveillance as a Service”, *Surveillance and Society* 17, no. 1/2, (March 2019): 27–33, <https://doi.org/10.24908/ss.v17i1/2.13008>.

<sup>43</sup> Jane Jacobs, *The Death and Life of Great American Cities*, (New York: Random House Inc., 1961): 30–54.

<sup>44</sup> The National Neighborhood Watch is affiliated with the National Sheriff’s Association.

removed from the street and watch from behind closes doors. Doorbell cameras and social media platforms are technical extensions of these previous neighborhood separation and surveillance efforts. Cameras and proximity-based social media platforms encourage residents to collectively watch and share on platforms in real time—while absent from the spaces being surveilled. Though marketed as a safety tool, in practice, the use of this technology is more diverse, complex, and often, pernicious.

In her book *Dark Matters: On the Surveillance of Blackness*, Simone Browne discusses how eighteenth century lantern laws in New York City were used to surveil enslaved people by requiring them to carry lamps when traveling alone after dusk. Browne writes that these lamps were “racializing in their application and effects” and “were employed in an attempt to identify who was in place with permission and who was out of place with censure.” Lantern laws made people of color hyper-visible, marking them “knowable, locatable, and contained within the city.” In a similar way, modern doorbell cameras are used to spotlight some people more than others, levying greater scrutiny on people of color. Scholars, activists and journalists have reported on the use of networked smart cameras and accompanying social media platforms to exacerbate racial profiling and discrimination.<sup>45</sup> The act of watching and sharing footage on platforms such as Neighbors and Nextdoor can extend and intensify insider-outsider dynamics, which often occurs along racial lines.<sup>46</sup>

According to legal scholar Rahim Kurwa, the neighborhood-based social media platform Nextdoor provides a place for neighbors to weigh in on who does and does not belong in their space, functioning as a tool to digitally gate communities. As Kurwa explains, digitally gated communities achieve racial and class exclusion through the social policing and surveillance of homes and neighborhoods.<sup>47</sup> This finding may have its roots in the camera’s application as a modern-day lantern, helping to explain the continued scrutiny that people of color, including workers of color, continue to face as they are labeled as not belonging in a neighborhood. For example, characterizing someone as suspicious is one way of demarcating them as an outsider or intruder. “Suspicious” is frequently used as a coded racialized descriptor for people of color

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<sup>45</sup> Makena Kelly, “Inside Nextdoor’s ‘Karen’ problem,” *The Verge*, June 8, 2020, <https://www.theverge.com/21283993/nextdoor-app-racism-community-moderation-guidance-protests>; Jay Stanley, “Should You Buy a Ring Doorbell Camera?” *ACLU*, September 10, 2019, <https://www.aclu.org/news/privacy-technology/should-you-buy-ring-doorbell-camera>; Caroline Haskins, “Amazon’s Home Security Company Is Turning Everyone Into Cops,” *Vice*, February 7, 2019, <https://www.vice.com/en/article/qvyyzd/amazons-home-security-company-is-turning-everyone-into-cops>.

<sup>46</sup> Todd Feathers, “The Downside to Surveilling Your Neighbors,” *The Markup*, September 8, 2021, <https://themarkup.org/privacy/2021/09/08/the-downside-to-surveilling-your-neighbors>; Jessi Hempel, “For Nextdoor, Eliminating Racism Is No Quick Fix,” *Wired*, February 16, 2017, <https://www.wired.com/2017/02/for-nextdoor-eliminating-racism-is-no-quick-fix/>; Will Oremus, “A Detroit community college professor is fighting Silicon Valley’s surveillance machine. People are listening,” *The Washington Post*, September 17, 2021, <https://www.washingtonpost.com/technology/2021/09/16/chris-gilliard-sees-digital-redlining-in-surveillance-tech/>; Chris Gilliard, “A Black Woman Invented Home Security. Why Did It Go So Wrong?” *Wired*, November 14, 2021, <https://www.wired.com/story/black-inventor-home-security-system-surveillance/>; Lauren Bridges, “Infrastructural obfuscation: unpacking the carceral logics of the Ring surveillant assemblage.” *Information, Communication & Society* 24, no. 6 (2021): 830–849, <https://doi.org/10.1080/1369118X.2021.1909097>.

<sup>47</sup> Rahim Kurwa, “Building the digitally gated community: The case of Nextdoor.” *Surveillance & Society* 17, no. 1/2 (2019): 111–117, <https://doi.org/10.24908/ss.v17i1/2.12927>.

in white spaces.<sup>48</sup> A 2019 *Motherboard* investigation found that the majority of people labeled “suspicious” on the Neighbors app in a Brooklyn community were people of color.<sup>49</sup>

What has been overlooked in the discussion of doorbell cameras and their application is the consequences that result for the workers delivering packages on private property. While an overwhelming number of doorbell users we interviewed asserted that

they purchased a doorbell camera for safety, when pressed about what specifically they feared would happen, package and property theft emerged as their main concern. Indeed, package theft is often the most discussed topic on neighborhood social media sites. In a 2021 study analyzing thousands of Neighbors posts over a three-and-a-half-year period, researchers Dan Calacci, Jeffrey Shen, and Alex Pentland found that posts about packages are among the most common. Specifically, messages about package theft (a category which includes posts with the words stole, front, thief, amazon, box, mail, package and porch) were the most popular type of Neighbors post in Los Angeles, California between January 2018 and February 2020.<sup>50</sup> Crucially, for many doorbell users, in their efforts to protect their property at the doorstep, they found themselves monitoring delivery drivers.

As a result, delivery drivers are now visible to a much larger audience. Doorbell footage can be shared with anyone online, including law enforcement. Ring makes it particularly easy to share footage by offering users six options within the Ring app: share to Facebook, share to Nextdoor, email, text, download, or “notify neighbors,” which appears as the largest button on the screen.<sup>51</sup> In addition to these neighborhood apps, doorbell footage can also be circulated on YouTube, Facebook, and TikTok, where it can be downloaded and reposted, pushing those captured on video into the limelight without their consent.

This ability to share footage can make the individual resident’s act of watching people at their door a community affair. Online, drivers are sometimes presented as hardworking and essential, and other times as lazy and inappropriate. During the pandemic, videos of delivery

*While an overwhelming number of doorbell users we interviewed asserted that they purchased a doorbell camera for safety, when pressed about what specifically they feared would happen, package and property theft emerged as their main concern.*

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<sup>48</sup> Maria R. Lowe, Angela Stroud, and Alice Nguyen. “Who looks suspicious? Racialized surveillance in a predominantly white neighborhood.” *Social Currents* 4, no. 1 (2017): 34–50, <https://doi.org/10.1177/2329496516651638>; Stefano Bloch. “Aversive racism and community-instigated policing: The spatial politics of Nextdoor.” *Environment and Planning C: Politics and Space* 40, no. 1 (2022): 260–278, <https://journals.sagepub.com/doi/10.1177/23996544211019754>; Kideste Miriam Wilder Bonner. “Race, Space and Being Policed: A Qualitative Analysis of Resident’s Experiences with Southern Patrols.” *Race and Justice* Vol 4, Issue 2 (2014).

<sup>49</sup> Caroline Haskins, “Amazon’s Home Security Company Is Turning Everyone Into Cops,” *Vice*, February 7, 2019, <https://www.vice.com/en/article/qvvyzd/amazons-home-security-company-is-turning-everyone-into-cops>.

<sup>50</sup> Dan Calacci, Jeffrey Shen, and Alex (Sandy) Pentland. “The Cop In Your Neighbor’s Doorbell: Amazon Ring And The Spread of Participatory Mass Surveillance,” *Proc. ACM Hum.-Comput. Interact.* 6, CSCW2, Article 400 (November 2022): 52, <https://doi.org/10.1145/3555125>.

<sup>51</sup> “How Do I Save and Share Ring Videos in the Ring App?,” Ring, April 16, 2021, <https://www.youtube.com/watch?v=JoDrxyAUb4>.

drivers being offered water and snacks by homeowners became feel-good glimpses into the outside world for many quarantining.<sup>52</sup> Conversely, footage has also been shared of delivery workers kicking items, being chased by animals, or littering. More recently, videos of delivery workers performing for the camera, say singing happy birthday or dancing, have become popular.<sup>53</sup> One driver described this content as your typical “shock-value meme stuff.” Another driver from Nashville, Tennessee, acknowledged the normalization of recording, but objected to the inclination to immediately upload that footage. “What I don’t like is...everybody’s recording everything...sometimes they put people on Facebook, and it don’t be like a crime...but everybody doesn’t want to be on video, especially when the whole world sees them.” These popular videos of drivers provide a glimpse into how delivery workers are watched, judged, and treated.

While people peering out their windows is nothing new, the widespread adoption of the doorbell camera allows residents to engage in constant surveillance of their space. As the growth of online shopping has transformed the doorstep into a new commercial space, customers now have a strong incentive to use their doorbell cameras to monitor the goods arriving there. We found that these circumstances have produced patterns of customer behavior—from expressing concerns about safety, to surveilling packages, to directly managing delivery workers at the doorstep.

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<sup>52</sup> For example, see Ring TV, “You Just Made My Day” — Kind Neighbors Leave Out Snacks for Delivery Drivers,” posted December 29, 2021, video, 1:26, <https://www.youtube.com/watch?v=miRKZwhIA70>.

<sup>53</sup> Recently, reporters have documented and criticized this phenomena, emphasizing the dehumanizing and dystopic nature of these requests. See Lexi Mcmenamin, “‘Heartwarming’ Amazon Driver Dancing TikTok Trend is Dehumanizing,” *Teen Vogue*, February 4, 2022, <https://www.teenvogue.com/story/amazon-delivery-driver-ring-camera-dance>; Gita Jackson, “Dystopic TikTok Trend Demands Amazon Workers Dance for Surveillance Cameras,” *Vice*, February 3, 2022, <https://www.vice.com/en/article/z3nqn4/dystopic-tiktok-trend-demands-amazon-workers-dance-for-surveillancecameras>. Some of this footage has gone viral, garnering millions of views. See @its.just.leah, Tik Tok video, accessed September 16, 2022, [https://www.tiktok.com/@its.just.leah/video/7054304851131501871?is\\_copy\\_url=1&is\\_from\\_webapp=v1&item\\_id=7054304851131501871&refer=embed&referer\\_url=https%3A%2F%2Foembed.vice.com%2F&referer\\_video\\_id=7054304851131501871](https://www.tiktok.com/@its.just.leah/video/7054304851131501871?is_copy_url=1&is_from_webapp=v1&item_id=7054304851131501871&refer=embed&referer_url=https%3A%2F%2Foembed.vice.com%2F&referer_video_id=7054304851131501871). Additionally, a recent survey from Circuit of over 800 delivery drivers found that 17.7% of drivers have been recorded by a customer for a social media trend or challenge. See Circuit, “Expecting too much?” <https://getcircuit.com/route-planner/blog/package-delivery-drivers-irl>. The sharing of entertaining doorbell footage has become so popular that Amazon is in development for a new TV show called *Ring Nation* which will feature videos shared by owners of doorbell cameras. See Peter White, “Wanda Sykes to host syndicated viral video show featuring Ring doorbell technology from MGM,” *Deadline*, August 19, 2022, <https://deadline.com/2022/08/wanda-sykes-host-syndicated-viral-video-show-ring-doorbell-technology-1235089510/>.

# BOSS BEHAVIOR

During the pandemic, Alex’s shopping habits changed dramatically. As a new mom working from home and restricted by quarantine orders, she found herself constantly ordering from Amazon. Baby products, household goods, children’s clothing, and even gifts were delivered to her door. She relied on her doorbell camera to alert her as soon as the baby formula or diapers arrived. The camera helped her make sure that her packages weren’t left outside for a long period of time; when her phone pinged with a notification of movement, she opened the app to see what had arrived, and made sure to grab it during her next break. Alex has recently placed a lock box on her porch for more protection against package thieves. Many users we interviewed acknowledge that during the pandemic their shopping habits changed and they began ordering more everyday goods online. With more goods sitting on the porch, users felt a greater incentive to monitor this space.

Given the broad rights afforded to private citizens on their property, people entering these spaces must submit to the rules of conduct set forth by the private individual. Through our interviews it became clear that customers have expectations of acceptable conduct—and customer service—at the doorstep. It appears that the habit of receiving deliveries to one’s private home can lead to personalized expectations of service that range from polite requests to uncomfortable demands unrelated to the delivery worker’s primary job.

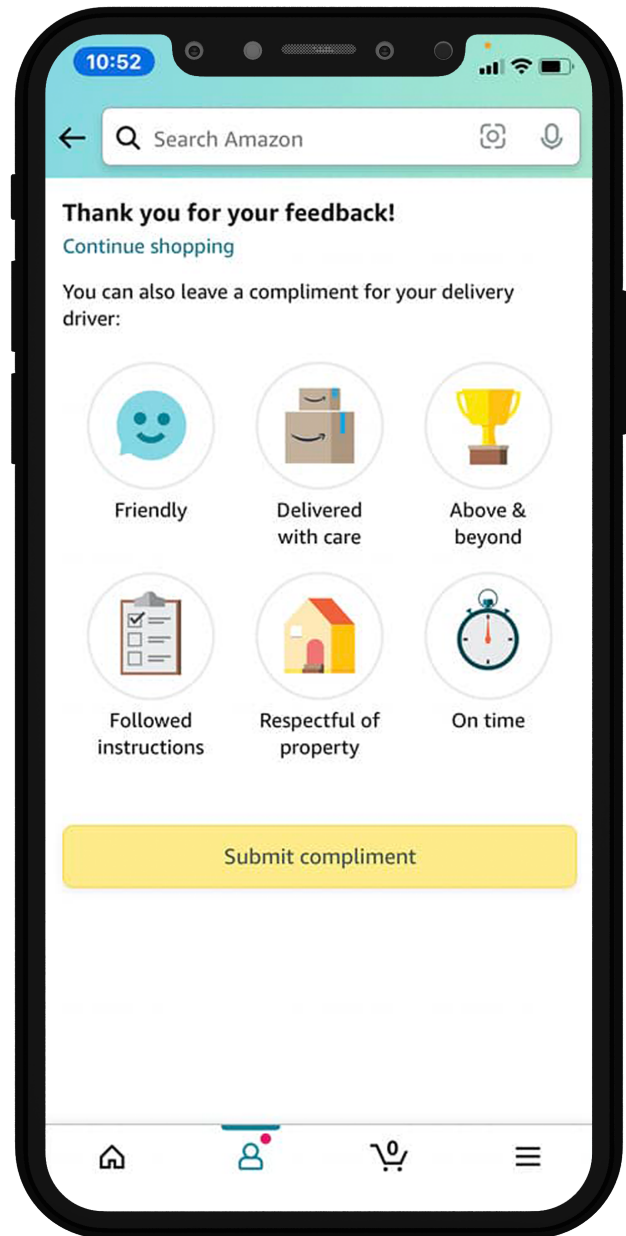


Figure 3: Screen shot of Amazon customer feedback page, September, 2022.  
Source: Amazon Flex Facebook Group.

We found that customers use doorbell cameras to make sure their packages are delivered in a manner consistent with their individual expectations. Cameras notify users of a delivery, but it is the customer who makes the decision to interact with, or otherwise monitor, the driver. Among the camera users we interviewed, we found consistent descriptions of what we call “boss behavior”—a range of actions, often undertaken in the name of safety or package security, that also function as the direct management of delivery workers. Specifically, we found that customers exhibited three types of supervisory behavior: monitoring, instructing, and punishing delivery drivers. These practices were possible because of the doorbell camera’s affordances, which allow customers to watch, save, and share footage of workers from anywhere at any time. Taken together, these actions have the effect of regimenting how drivers work and behave at the doorstep.

## MONITOR

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Doorbell cameras make monitoring the delivery process an instinctive, and for some customers a habitual behavior. The moment a delivery driver parks in front of a home, a notification of movement is sent to the user.<sup>54</sup> These notifications pull customers into the act of watching the delivery unfold. This nudge often prompts customers to open the app to watch the driver complete the delivery.<sup>55</sup> Stella, a video doorbell user from Cincinnati, Ohio, told us, “Whenever I get a notification about a delivery I always watch the actual delivery process, [it’s] just kind of a habit of mine.” For Amazon deliveries, Stella relies on the delivery information Amazon provides through their website, her Ring camera, and her Amazon Alexa to establish exactly when her packages will arrive at her front door. “For an Amazon order, I will ask [Alexa] when is it going to be delivered? We’ll certainly use the tracking information on the websites. And then if I’m at home and once I know it’s out for delivery I really don’t check it again until I get the notification from the doorbell camera.” Other customers also described checking their doorbell camera more frequently on days when they expected deliveries. One woman from a suburb of Washington, DC, told us,

*We found that customers exhibited three types of supervisory behavior: monitoring, instructing, and punishing delivery drivers.*

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<sup>54</sup> Note that users can turn motion alerts off, alter their sensitivity, and can edit the distance in which they receive notifications, called motion zones. On Ring’s support page it reads, “Within the Motion Settings for each Ring device, you can customize the settings to adjust for Motion Sensitivity, Motion Frequency, Smart Alerts or set up Motion Schedules. Smart Alerts allow [you] to distinguish between people and other types of motion, such as cars, if you subscribe to a Ring Protect plan. Despite this, none of the users we interviewed told us they have smart alerts, and thus there was no difference in alert between a car or person or other. See “Getting Notifications for Ring Doorbells and Security Cameras,” Ring, accessed September 16, 2022, <https://support.ring.com/hc/en-us/articles/360018032731-Doorbell-Announcement-Notifications-Through-Amazon-Alexa>.

<sup>55</sup> Markus Weinmann, Christoph Schneider, and Jan vom Brocke. “Digital nudging.” *Business & Information Systems Engineering* 58, no. 6 (2016): 433–436, <http://dx.doi.org/10.2139/ssrn.2708250>.

“If it’s a busy day where there’s packages being delivered or something [I’ll check the camera] three or four times a day.”

Some customers said they watched deliveries because at first, they were unable to recognize the person as a delivery worker. This is likely to happen to Flex drivers, who have the option of wearing Amazon vests if available, but have no required dress code.<sup>56</sup> One customer from a suburb of Boston, Massachusetts described her anxiety toward un-uniformed drivers: “There’s no uniform on them. You don’t know who they are. Seriously. And you’re going to leave something by my door. Is it a bomb?” This exaggerated statement captures the sentiment we heard repeatedly from customers—that they don’t trust the people who approach their home.

Customers believe that drivers are aware of the widespread monitoring that happens through doorbell cameras, and think it encourages virtuous driver behavior. When asked if she watches delivery drivers through her doorbell camera, one customer from Los Angeles, California responded, “Yeah, definitely. Hopefully, they are aware too that they’re being monitored.” Another woman from rural Oklahoma said, “I feel like if you’re a delivery driver, you feel like people are watching you, and you’re on your best behavior because so many people have these doorbells that somebody is always watching you. Even if you don’t think you’re being watched, you are. So I’ve never had the issue of them just throwing a package.” This logic is similar to the way customers think about doorbell cameras and safety. Customers repeatedly told us that having this technology (regardless of whether it is used) may dissuade bad actors from targeting their house. In a similar vein, customers see the camera as a tool to ensure workers behave a certain way on their property. This power dynamic, which emerges from having a clear observer and observee, resembles the types of monitoring that happens in more standard work arrangements where workers submit to monitoring by employers.

In our interviews, drivers were acutely aware of doorbell cameras. As one driver from Glendale, Arizona, told us, “I notice them every time they have one. So if it’s there I notice it.” Describing his behavior around cameras he said, “I typically audibly say thank you because I know that it’s recording. So I do pay attention to when they’re there and when they’re not.” Other drivers described waving, smiling, or directly speaking to the camera. Drivers saw this both as a form of good customer service and acknowledgment of the customer behind the door. Sarah, a driver from Denver, Colorado, explained, “I’ll talk to them because I know they’re watching me. If I tripped up the steps I’d be like, ‘I’m going to break my neck someday.’ I’ll say it out loud to the camera.” As Sarah describes, she wants the customer to know she is aware of the camera and the potential audience behind the door. Providing another example, Sarah described how when she recently dropped a package in front of a Ring camera she audibly exclaimed, “I’m so sorry. I hope everything in the package is okay; that was an accident.” When asked why she does this

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<sup>56</sup> Amazon Flex, “FAQ.”



she said, “It’s just making sure that they know that I see them seeing me,” and that it is also an effort “to portray some kind of message, in hopes that the customer sees it.”

Another driver from Brooklyn, New York, spoke about changing his body language when he noticed a doorbell camera: “Whenever I see a doorbell camera, I change the way I stand...I’ll be in a very relaxed position while standing, but when...I see the camera, I won’t be in a relaxed position at all, I would want to look very smart and very polite.” When asked why he does this, he replied, “I have the idea that someone is watching me, trying to look [for] my mistakes, and I would want to appear as perfect as I could be.” Another driver from Colorado believes that the cameras “make you more honest” and that when she sees a camera she will “take extra special care with the packages.” A driver from Philadelphia, Pennsylvania, echoed this, saying that she takes extra time to carefully set the packages down when there is a doorbell camera. “I’m not throwing bags anyway, but you are just on your best behavior because they can see...I guess it’s like the teacher watching.” In this way, customers’ beliefs about the doorbell camera as a tool to elicit good behavior is validated by drivers’ own account of behavior modifications.

*...customers’ beliefs about the doorbell camera as a tool to elicit good behavior is validated by drivers’ own account of behavior modifications.*

On the other hand, a few drivers told us that the doorbell camera did not affect their behavior because they were confident in their job performance. One driver from a small town in Maryland told us, “Seeing the doorbell and knowing that I’m being recorded, it doesn’t bother me. I think mainly because...I’m doing what I’m supposed to be doing.” Another driver from Durham, North Carolina, felt similarly. “I try to get out of there as quickly as possible. I’m not concerned about what people are doing with their cameras. If they’re trying to catch someone doing something suspect, they’re not going to catch me doing it because I don’t touch anything I’m not supposed to touch. I just drop off stuff and leave.” Even in these cases, this nonchalant attitude toward doorbell cameras is predicated on the drivers’ belief that they were behaving in the proper way. Given these sentiments, we see that even drivers who don’t modify their behavior for the camera know that cameras can be used to monitor and discipline them. Yet, despite these beliefs, interviews with customers revealed that what actions they consider inappropriate or worthy of reporting varies greatly from person to person.

## INSTRUCT

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In addition to monitoring, customers sometimes directly instruct a driver at their doorstep. The ability to watch footage live, coupled with the speaker in most doorbell cameras, allows customers to speak to a worker from their phone. Amazon encourages this behavior by emphasizing customization and personalization in the delivery process. One example of this customer-first philosophy is the various options Amazon provides for delivery location, and the open-text box where customers can add additional delivery instructions after checking out.<sup>57</sup> This text box allows customers to make free-form requests of any nature.

At the doorstep, customers expressed distinct preferences about doorbell ringing, package placement, and time spent at the door. For example, customers were split on the subject of doorbell ringing; some wanted to be alerted that their package had arrived, while others didn't want to be bothered (some mentioned sleeping babies, excitable pets, and work meetings). Other customers expressed distinct preferences about where they wanted their package to be placed; "Some [drivers] will just put it...where it's highly visible to anybody who walks down the street. Which I think is—I know they have a lot of packages—but it's lazy. I would appreciate it if they don't put it in front of our door." Customers also requested that packages be placed in lock boxes, inside their side door, or on their back porch. Describing such requests, one driver explained, "They'll tell you, 'Put it in the front door; put it in the back door; put it in the garage,' all kinds of stuff like that. I've had the 'Put it inside my car trunk,' which I call the Pablo Escobar delivery."

While customers spoke about these requests as preferences, drivers—whose jobs rely on maintaining a high standing—understand them as instructions that have to be followed. As precarious workers whose jobs can be threatened by bad reviews, drivers feel pressure to abide by these requests. However, as explained earlier, at times these requests can interfere with a driver's other responsibilities, such as delivering items on time. For drivers, customer service norms are determined almost entirely by the individual customer.

Some customers we spoke to described using the speaker in their doorbell to ask drivers to fulfill particular requests. "There has been a time where I had to speak to them through the Ring...They were leaving [the package] right in front of the door, just for anybody to drive past and see it...I wanted them to place it behind and off to the side...so I had to ask them to do that." In this way, the affordances of the doorbell camera, with its speaker and real-time notifications, make it easier for customers to guide the workers at the doorstep and ascertain whether their instructions were followed. One woman, after watching a driver litter through her doorbell camera, went outside to reprimand him, making him pick up what he had littered and asking him

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<sup>57</sup> Customers can choose from multiple options of where the package should be left and add additional instructions. While the header reads, "Do we need additional instructions to find this address" customers described using this space to add additional requests.

to clean up other items in her front yard as well. Describing the event she recalled, “I was able to get it instantly because I was watching him live. Not because I was looking for anything wrong, but because I wanted to make sure he took the two packages. I never expected him to take something and throw it in the street.”

Customers are emboldened to correct and instruct delivery workers because the activity takes place on their property, and with the doorbell camera they can see it in real time from any location. This is not unlike a manager whose seniority gives them the authority to instruct or guide an employee. When customers complain that their instructions, which can sometimes be irrelevant or unreasonable, were not met, drivers can face consequences. One driver summarized it like this:

*If the customer complains that you drove on the grass, if you left the package in a non-preferred location, they can complain about that. They can pretty much complain about you for anything and you get in trouble for it, which is frustrating. But it's all about the customer, so if the customer's not happy, then they complain about you and then you get in trouble.*

## PUNISH

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Doorbell cameras and their related platforms not only give customers the ability to instruct and oversee, they also provide numerous ways to punish delivery workers. The customers we spoke to described various forms of driver penalization, including reporting a driver to the retailer, notifying law enforcement, or sharing doorbell footage of the driver online in an effort to shame or embarrass them. Customers said they would report a driver to Amazon or, in some cases, to law enforcement, if they believed the worker was not doing their job correctly. Sheryl, the woman described in the introduction who allegedly watched an Amazon driver kick her package, reflected on this experience: “I’m watching the driver more, I’m more inclined to make a report if there is a bad driver.” Another customer told us, “If my package looks like it’s been beaten up, I will look and see if they threw it.” For this customer, the doorbell camera allows her to investigate her suspicion of a driver, and report them to the company if necessary.

In part because it is so easy to save and share footage from doorbell cameras to social media, there has been an increasing number of videos of delivery drivers posted online over the past few years.<sup>58</sup> Though the nature of the footage differs, some users post clips to shame drivers for their behavior; many online videos show drivers throwing packages

or driving on customers' lawns.<sup>59</sup> The majority of drivers we spoke with expressed an uneasiness about this type of online shaming. As one driver told us:

*I feel like those types of things are an invasion of privacy, to be honest. I know you can tape people if you want to. I don't know how those privacy laws work exactly, but I know that if it's your footage then you can post it if you want to. I see people posting their delivery drivers all the time, which I've always thought is a little bit suspect.*

Drivers know that, once online, videos can be seen by a large and unknowable audience, something many view as an unnecessary infringement on their privacy. One driver questioned the intent of users who post footage online, expressing fear that these videos can get back to a driver's family or friends:

*Why should you put someone on social media? Why don't you just report directly to Amazon, and maybe they can deal with it?...That's like an invasion of privacy, too, and it doesn't end up well. You can imagine how the family of that driver feels when they see that footage.*

For this driver and many others we spoke with, the growing popularity of sharing footage of drivers on social media to shame or embarrass them is a concerning phenomena. Drivers largely felt that this behavior was an invasion of their privacy because, although they acknowledged a resident's right to record on their property, they had not consented to being put online for thousands of people to watch and react to. Some drivers felt powerless in this dynamic. As one driver from Lakewood, Florida, told us, "I don't like the whole camera thing...but what choice do I have? There is no choice. If I don't like it, then I got to go work at the supermarket for 12 dollars an hour. So I have no choice."

Though the majority of drivers agreed that shaming with footage was unacceptable, a handful of drivers maintained that, on the whole, the doorbell camera also benefited them. These drivers saw the camera as a form of protection or proof that they completed their deliveries. In

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<sup>58</sup> Sarah Jackson, "Nearly 1 in 5 delivery drivers say customers have used them to make videos for TikTok challenges or other social media trends," *Business Insider*, April 29, 2022, <https://www.businessinsider.com/delivery-drivers-say-customers-use-them-for-social-media-trends-2022-4>; Sarah Jackson, "Amazon drivers are fed up with being asked to do TikTok dances for home surveillance cameras while delivering packages," *Business Insider*, February 12, 2022, <https://www.businessinsider.com/amazon-delivery-drivers-sick-of-tiktok-dance-requests-on-camera-2022-2>; Amanda Hess, "Dance, I Said — Dance! And Leave the Package on the Porch," *The New York Times*, February 11, 2022, <https://www.nytimes.com/2022/02/11/arts/amazon-tiktok-box-delivery.html>.

<sup>59</sup> See, for example, Phil West, "Amazon driver caught throwing packages aggressively, dinging car with delivery truck in viral TikTok," *The Daily Dot*, September 10, 2021, <https://www.dailydot.com/unclick/amazon-driver-caught-throwing-packages-dinging-car-tiktok/>; or Ben Cost, "Amazon deliveryman caught tossing packages like Frisbees in security video," *The New York Post*, October 27, 2021, <https://nypost.com/2021/10/27/doorbell-camera-captures-amazon-delivery-man-tossing-packages-like-frisbees/>.

this way, they viewed the cameras as a way to protect themselves against the consequences that can result from false accusations. One driver elaborated on the reasoning behind this:

*I do always kind of have a sigh of relief when I see that they have a Ring Doorbell or some type of video camera doorbell, just because the biggest thing that is an issue for the Amazon Flex contractors is we can make a delivery, and take the picture, and be done, but someone can take that package after us, and our rating will still be dinged, even though we made the delivery successfully.*

The doorbell camera helped this specific driver twice. On two separate occasions a customer reported that a package never arrived and suggested to Amazon that the driver might have stolen it. Footage from the doorbell camera later revealed that someone else had snatched it off the porch following the delivery. After Amazon alerted the driver of these instances, his views of doorbell cameras changed. Other drivers echoed this feeling, believing that the camera can “back you up” and “provide proof” that you fulfilled your job

***The desire for a witness, and the belief that the camera could function as such, is a reminder of the precarious conditions of this work, namely the challenges that come with working alone on a stranger’s property without any formal employee safeguards.***

responsibilities. A driver from a rural town in southern Idaho told us, “My first thought when you asked that was, that’s backup in case I need a witness [for] the person who says, ‘My food didn’t get delivered,’ or, ‘My delivery person kicked over my plants,’ or ‘kicked my cat’...there would be a video of it.” The desire for a witness, and the belief that the camera could function as such, is a reminder of the precarious conditions of this work, namely the challenges that come with working alone on a stranger’s property without any formal employee safeguards.

A Black driver from Chicago, Illinois, told us the camera helps identify him as a worker in a neighborhood, making him feel slightly more protected when working in white spaces. “On the positive side, it verifies me, and it can help me in some cases when I’m being accused of anything. I’m a Black person, so in this country you have to be more careful, and you can be accused of anything, any time.” For this driver, the camera is a tool of identification and authentication; he believes it helps label him as a “worker” and not a “suspicious person” or “criminal” in neighborhoods.

For delivery drivers such as Flex workers, who are classified as independent contractors, there is no contractual relationship between customers and drivers. Instead, drivers are bound by the app’s terms of service. Still, the practices customers describe, such

as adding instructions, filing complaints, and providing reviews, require drivers to answer to hundreds of different bosses in order to keep their job. Ultimately, customer feedback is used by retailers as a basis for disciplining workers. Retailers use complaints and reviews in order to determine who should be rewarded preferred scheduling, disciplined for errant behavior, and sometimes, deactivated. In this way, customer behavior allows retailers to assert more control over drivers, weakening claims that drivers are independent, and thus, customer monitoring through the doorbell camera ultimately benefits the retailer.

# CONCLUSION

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*“How do you have a technology like that without overusing it?... I don’t want to use it to cooperate with police or some massive surveillance network of Ring cameras. I get really worried when people start to get overzealous and call the police on every random Black person that comes by...but sometimes it can be useful for knowing when your Amazon packages show up, so I’ll probably hang on to it. That’s my use of the Ring.”*

*—Resident, St. Louis, Missouri*

Critiques of the growing popularity of private home surveillance systems such as Ring and SimpliSafe, and social media sites like Neighbors, Nextdoor, and Citizen have focused on the potential of such tools to create a massive surveillance network, the consequences of which include digitally gated communities and hostile environments for people of color.<sup>60</sup> Our research contributes to the discussion by showing that a significant amount of the time, such systems are also used to manage workers at the doorstep. This space is controlled by customers through doorbell cameras, and interactions between customers and delivery workers ultimately benefit retailers like Amazon.

We argue that the technological advances of security cameras combined with social media networks encourage changes in customer behavior, constituting a new form of workplace management that extends beyond the familiar forms of workplace monitoring. In an ingenious way, Amazon has managed to transform what was once a labor cost (i.e., supervising work and asset protection) into a revenue stream through the sale of doorbell cameras and subscription services to residents who then perform the labor of securing their own doorstep. Customers have become active participants in setting the conditions for workers at the doorstep.

The boss behaviors we observed, which constitute a new form of worker management, afford employers like Amazon greater control over the delivery workers who they claim are independent contractors. The urgency of this issue is heightened because the digital doorstep allows all employers, not just Amazon, the ability to indirectly manage workers. This gig-based model of e-commerce logistics is proliferating in the retail and service industry, allowing retailers

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<sup>60</sup> See Kurwa, “Digitally Gated Community”; Calacci et al., “The Cop In Your Neighbor’s Doorbell”; Bridges, “Infrastructural obfuscation”; Selinger, “surveillance as a slippery slope service”; Bloch, “Aversive racism”; Katie Lambricht, “Digital Redlining: The Nextdoor App and the Neighborhood of Make-Believe.” *Cultural Critique* 103 (2019): 84–90. doi: 10.1353/cul.2019.0023.

to exert control over workers while claiming to do the opposite. Large retailers including Walmart and Target also rely on an independent contractor model of delivery service through their own delivery platforms (called Spark and Shipt respectively).<sup>61</sup> Additionally, the recent announcement by Amazon that they would offer Fulfillment By Amazon (FBA) to non-Marketplace sellers marks another step toward its logistics domination.<sup>62</sup> Companies have an incentive to control the last minutes of the last mile of delivery in order to ensure that packages arrive in the hands of customers. We found that it is often customers, armed with a doorbell camera, who perform this monitoring in benefit to the retailer, and frequently at the expense of the delivery driver.

*Amazon has managed to transform what was once a labor cost into a revenue stream through the sale of doorbell cameras and subscription services to residents who then perform the labor of securing their own doorstep.*

Long-term, we anticipate doorbell and other networked cameras to become more entrenched in the infrastructure of communities, commerce, and law enforcement. The fear that private security systems are creating a massive surveillance network is not unfounded; some workers recalled driving through neighborhoods where they were captured at nearly every doorstep on their delivery route. Moreover, Ring's partnerships with law enforcement isn't haphazard. One touted benefit of networked social media sites is the potential to engage with police. Ring has partnerships with over 2,000 law enforcement agencies across the United States, allowing law enforcement to connect with residents on Neighbors, and request users' Ring footage.<sup>63</sup> In July, a probe by Senator Ed Markey produced a letter from Ring revealing that the company has provided Ring footage to law enforcement without user consent at least eleven times in 2022.<sup>64</sup> Other municipalities have taken this a step further—creating programs where residents and businesses can proactively register and integrate their cameras directly with local police, giving police a map of the private cameras in their jurisdiction and, in some cases, direct access to footage.<sup>65</sup>

<sup>61</sup> "Shipt home page", accessed September 16, 2022, [https://www.shipt.com/target/?utm\\_source=google&utm\\_medium=paid-search&utm\\_campaign=16705847188&utm\\_content=134644957323&utm\\_term=590319491750--target%20shipt--e&gclid=Cj0KCQjwy0uYBhCGARIsAdGQRPL0TDYDqE4Fm2AaEYAWbdR19Y1CAwSdwMnA4Cj3DkEx8-J4ojmylgaAuSvEALw\\_wcB&gclid=aw.ds](https://www.shipt.com/target/?utm_source=google&utm_medium=paid-search&utm_campaign=16705847188&utm_content=134644957323&utm_term=590319491750--target%20shipt--e&gclid=Cj0KCQjwy0uYBhCGARIsAdGQRPL0TDYDqE4Fm2AaEYAWbdR19Y1CAwSdwMnA4Cj3DkEx8-J4ojmylgaAuSvEALw_wcB&gclid=aw.ds); "Spark home page", accessed September 16, 2022, <https://drive4spark.walmart.com/>.

<sup>62</sup> Annie Porter, "Amazon Opens Up Prime Delivery Service to Other Retailers in it's Latest Move to Compete with FedEx and UPS," CNBC, April 21, 2022, <https://www.cnbc.com/2022/04/21/amazon-ramps-up-fedex-ups-rivalry-by-expanding-prime-to-third-parties.html>.

<sup>63</sup> See Ring's "Active Agency Map", which is regularly updated with the company's partnerships with law enforcement agencies and fire departments, <https://www.google.com/maps/d/u/0/viewer?mid=1eYVDPH5itXq5acDT9b0BVeQwmESBa4cB&ll=36.194591702507864%2C-103.96982876449249&z=3>. <https://www.markey.senate.gov/news/press-releases/senator-markeys-probe-into-amazon-ring-reveals-new-privacy-problems>.

<sup>64</sup> As of July 2022, Amazon Ring gave footage to police departments at least 11 times without owners permission. See "Senator Markey's Probe Into Amazon Ring Reveals New Privacy Problems," press release, July 13, 2022, <https://www.markey.senate.gov/news/press-releases/senator-markeys-probe-into-amazon-ring-reveals-new-privacy-problems>.

<sup>65</sup> See "Operation Plugged In," Brookhaven, Georgia Police, accessed September 16, 2022, <https://www.brookhavenga.gov/police/page/operation-plugged>; see also, "Keeping Orlando Safe Together," City of Orlando, accessed September 16, 2022, <https://orlandoconnect.orlando.gov/>; see also, "WatchDSM: Community Camera Program" City of Des Moines, accessed September 20, 2022, [https://www.dsm.city/departments/police-division/investigations/watchdsm.php?fbclid=IwAR2FZ8dwVwNv7acM61540Ni9B0QeU32yQtI5ExZop\\_cp9glUMtTgkwVMaHk](https://www.dsm.city/departments/police-division/investigations/watchdsm.php?fbclid=IwAR2FZ8dwVwNv7acM61540Ni9B0QeU32yQtI5ExZop_cp9glUMtTgkwVMaHk).



Relationships with law enforcement are intended to improve community safety, however, the protection of private property, and more specifically of packages, is surfacing as a top policy priority for local governments. Such fears have motivated at least a dozen municipalities to introduce legislation that more severely penalizes package theft.<sup>66</sup> The growth of e-commerce has created a new type of criminal, the “porch pirate.” Increasingly, camera footage is a powerful tool in police investigations of package theft.<sup>67</sup> The San Francisco City Council recently introduced a measure that would dramatically expand the grounds for which the San Francisco Police Department (SFPD) would be able to access private security footage, including footage from doorbell cameras. According to the proposal, “retail theft, rioting, looting and drug-dealing” would be among the crimes for which SFPD could obtain footage.<sup>68</sup> In this case, the fear of theft is used as an argument for monitoring everyone, and employing private data as part of the state apparatus.

Given our research, it is clear that the proliferation and use of video doorbell cameras have a direct impact on the lives of workers. We have documented the spread of a technology justified on the grounds of “safety” or theft prevention, but whose primary use is the monitoring, instruction, and punishment of workers by customers. As customers install doorbells for protection from an absent criminal figure, they end up practicing a new form of doorstep surveillance on those actually present: delivery workers, in personal vehicles, without uniforms, likely arriving at a customer’s home for the first time. For those workers, arriving at the digital doorstep is now an experience of performing deference to an unseen and unknown audience—perhaps a homeowner, perhaps Amazon, perhaps the internet or the police or all of the above. In short, the issues of distributed surveillance and workplace fairness are here, perfectly overlapped.

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<sup>65</sup> See “Operation Plugged In,” Brookhaven, Georgia Police, accessed September 16, 2022, <https://www.brookhavenga.gov/police/page/operation-plugged>; see also, “Keeping Orlando Safe Together,” City of Orlando, accessed September 16, 2022, <https://orlandoconnect.orlando.gov/>; see also, “WatchDSM: Community Camera Program” City of Des Moines, accessed September 20, 2022, [https://www.dsm.city/departments/police-division/investigations/watchdsm.php?fbclid=IwAR2FZ8dwVwNv7acM61540Ni9B0QeU32yQtI5ExZop\\_cp9gUmtTgkwVMaHk](https://www.dsm.city/departments/police-division/investigations/watchdsm.php?fbclid=IwAR2FZ8dwVwNv7acM61540Ni9B0QeU32yQtI5ExZop_cp9gUmtTgkwVMaHk).

<sup>66</sup> Lam Thuy Vo, “Porch Piracy: are we overreacting to package thefts from doorsteps?” *The Guardian*, August 25, 2022; Aiha Nguyen and Eve Zelickson, “State efforts to curb porch theft has another potential victim: delivery workers,” *Fast Company*, December 22, 2021, <https://www.fastcompany.com/90707096/state-efforts-to-curb-porch-theft-has-another-potential-victim-delivery-workers>.

<sup>67</sup> Drew Harwell, “Home-security cameras have become a fruitful resource for law enforcement—and a fatal risk,” *The Washington Post*, March 2, 2021, <https://www.washingtonpost.com/technology/2021/03/02/ring-camera-fears>.

<sup>68</sup> Joe Kukura, “Breed and New DA Jenkins Pushing Hard to Expand Police Access to Private Security Cameras All Over Town,” *SFist*, July 11, 2022, <https://sfist.com/2022/07/11/breed-and-new-da-jenkins-pushing-hard-to-expand-police-access-to-private-security-cameras-all-over-town/>.

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