SENATE COMMITTEE ON PUBLIC SAFETY

Senator Aisha Wahab, Chair
2023 - 2024 Regular

Bill No:	AB 2681	**Hearing Date:**	June 11, 2024
Author:	Weber		
Version:	April 11, 2024		
Urgency:	No	**Fiscal:**	Yes
Consultant:	AB		

Subject: ***Weapons: robotic devices***

HISTORY

Source: Boston Dynamics

Prior Legislation: AB 79 (Weber, 2023), not heard in Assembly Public Safety
AB 48 (Gonzalez, Ch. 404, Stats. of 2021)
AB 392 (S. Weber, Ch. 170, Stats. of 2019)
SB 807 (Gaines, Ch. 834, Stats. of 2016)

Support: Association for Uncrewed Vehicle Systems International; Dronedeploy; Oakland Privacy; Silicon Valley Robotics

Opposition: None known

Assembly Floor Vote: 71 - 0

PURPOSE

The purpose of this bill is to prohibit a person from knowingly manufacturing, modifying, selling, transferring or operating a robotic device that is equipped or mounted with a weapon, with limited exceptions.

Existing law defines "weaponized aircraft, vessels, or vehicles of any kind" as "military equipment" requiring the approval a local governing body before law enforcement may seek, use, or acquire such equipment. (Gov. Code, §§ 7070, subd. (c)(6), & 7071, subd. (a)(1).)

Existing law provides that a person who knowingly and intentionally operates an unmanned aircraft system on or above the grounds of a state prison, a jail, or a juvenile hall, camp, or ranch is guilty of an infraction, punishable by a fine of $500. (Gov. Code, § 4577, subd. (a).)

Existing law makes it a misdemeanor to use an unmanned aircraft system to look through a hole or opening into the interior of specified areas in which the occupant has a reasonable expectation of privacy with the intent to invade the privacy of a person inside. (Pen. Code, § 647, subd. (j)(1).)

Existing law provides that it is unlawful for any person to operate an unmanned aircraft system in pest control unless the pilot operating the unmanned aircraft system holds a valid manned pest control aircraft pilot's certificate or a valid unmanned pest control aircraft pilot's certificate

issued by the director and is certified or otherwise authorized by the Federal Aviation Administration to operate an unmanned aircraft system approved by the Federal Aviation Administration to conduct pest control. (Food & Agr., § 11901, subd. (b).)

Existing law provides that the possession or knowing transport of a machine gun, except as specified, is a felony punishable by imprisonment in county jail for 16 months, 2 years, or 3 years, by a fine of up to $10,000, or by both fine and imprisonment. (Pen. Code, § 32625, subd. (a).)

Existing law provides that intentionally converting a firearm into a machine gun, or selling or knowingly manufacturing a machine gun, is a felony punishable by imprisonment in county jail for 4, 6, or 8 years. (Pen. Code, § 32625, subd. (b).)

Existing law provides that possession of a destructive device is punishable by up to one year in county jail, by up to three years in state prison, by a fine of up to $10,000, or both fine and imprisonment. (Pen. Code, § 18710, subd. (b).)

Existing law provides that a person who recklessly or maliciously possesses a destructive device or explosive in a public place or designated private places is guilty of a felony punishable by imprisonment in county jail for 2, 4, or 6 years. (Pen. Code, § 18715.)

Existing law provides that selling or knowingly transporting a destructive device is a felony punishable by imprisonment in county jail for 2, 3, or 4 years. (Pen. Code, § 18730.)

Existing law provides that a person who possesses, explodes, ignites, or attempts to explode or ignite any destructive device or any explosive with intent to injure, intimidate, or terrify any person, or with intent to wrongfully injure or destroy any property, is guilty of a felony punishable by imprisonment in county jail for a period of 3, 5, or 7 years. (Pen. Code, § 18740.)

Existing law defines "destructive device" to include, among other things, a bomb, grenade or explosive missile; a weapon of a caliber greater than 0.60 caliber which fires fixed ammunition, other than a shotgun, as specified; a rocket or rocket-propelled projectile, as specified; and a breakable container that a flammable liquid with a flashpoint of 150 degrees Fahrenheit or less with a wick capable of being ignited. (Pen. Code, § 16460, subd. (a).)

Existing law defines "machinegun" as a weapon that shoots, is designed to shoot, or can readily be restored to shoot, automatically more than one shot, without manual reloading, by a single function of a trigger; the frame or receiver of any weapon, any part designed and intended solely and exclusively, or combination of parts designed and intended, for use in converting a weapon into a machinegun, and any combination of parts from which a machinegun can be assembled if those parts are in the possession or under the control of a person; or any weapon deemed by the federal Bureau of Alcohol, Tobacco, Firearms and Explosives as readily convertible to a machinegun, as specified. (Pen. Code, § 16880.)

This bill sets forth the following definitions for terms used therein:

- "Defense industrial company" means a company that has a contract with the United States Department of Defense to design, manufacture, develop, modify, upgrade, or produce a robotic device, and includes any employees or agents authorized by that

defense industrial company to engage in activities relating to such a contract on its behalf.

- "Robotic device," means a mechanical device capable of locomotion, navigation, flight, or movement and that operates at a distance from its operator or supervisor based on commands or in response to sensor data, or a combination of those, including mobile robots, unmanned ground vehicles, and unmanned aircraft.

- "Weapon" means a device designed to threaten or cause death, incapacitation, or physical injury to a person, including, but not limited to, stun guns, firearms, machine guns, chemical agents or irritants, kinetic impact projectiles, weaponized lasers, and explosive devices.

This bill makes it unlawful for a person to manufacture, modify, sell, transfer, or operate a robotic device equipped or mounted with a weapon.

This bill provides that a person who knowingly violates this section shall be required to pay a fine of at least $1,000 but not more than $5,000, which shall be imposed in addition to any other penalty imposed pursuant to any other law.

This bill provides that the prohibition above does not apply to any of the following:

- A defense industrial company with respect to robotic devices that are within the scope of its contract with the United States Department of Defense.

- A robotic device developer, manufacturer, or producer who modifies or operates a robotic device equipped or mounted with a weapon for the sole purpose of developing or testing technology that is intended to detect, prevent, or mitigate the unauthorized weaponization of a robotic device.

- The United States Department of Defense, and any of its departments, agencies, or units.

This bill provides that it shall not be a violation of its provisions for government officials, acting in the public performance of their duties, to operate a robotic device equipped or mounted with a weapon or disrupter technology, when used for the purpose of the disposal of explosives or suspected explosives, for development, evaluation, testing, education or training relating to the use of such technologies for the purpose of disposing of explosives or suspected explosives, or for the destruction of property in cases where there is an imminent, deadly threat to human life.

COMMENTS

1. Need for This Bill

According to the Author:

> California leads the nation in ground breaking policy when it comes to the environment, labor, public safety, consumer protections, and technology. The proliferation of cheap drones and advanced robotics has made it easier than ever to weaponize these devices. Within the last several years there have been viral videos

with weaponized robots and drones utilizing firearms to shoot at targets and dropping training grenades on willing participants. These types of videos may give individuals the idea that it is okay to arm their drones or robot. We must alert the public that it is not allowed in California to arm these devices. The imagery of armed robots walking the streets of California is damaging to the goals of many robotics companies. These devices are being designed and built to assist us. They are not being designed to harm us. It is again time for California to lead the nation and establish a prohibition of weaponized robots and drones.

2. The Use of Armed Robots

The advancement of robotics technology over the past several decades has seen a contemporaneous growth in the use of armed robots, primarily in official law enforcement and military contexts that pose high risk to human actors. For instance, the 21st Century has seen the rise of "unmanned aerial vehicles," or UAVs, which, in a military setting, can operate with various levels of autonomy at long ranges and are used for intelligence gathering, reconnaissance, target acquisition, and striking targets with a range of different ordinance types. The expansion of United States military involvement in the Middle East beginning in the early 2000s saw an increase in drone strikes on enemy targets across the region, and public debates back in this country about the collateral damage they caused, which continue today.[1] More recently, military conflicts (such as those in Ukraine and the Middle East) have involved the use of smaller, more nimble short-range drones equipped with explosives and intended for one-time use.[2]

Additionally, law enforcement use of unmanned drones and robots – both armed and unarmed – has received increasing attention in recent years. Currently, law enforcement in California are not prohibited from using weaponized robots or drones, although existing law requires police agencies to seek approval before acquiring such devices. Specifically, existing law requires a law enforcement agency to get approval from the local governing body (the city council or board of supervisors, for instance) with jurisdiction over the agency prior to using military equipment, which includes "unmanned, remotely piloted, powered aerial and ground vehicles" and "weaponized aircraft, vessels, or vehicles of any kind." The law also mandates that the public must have an opportunity to comment on the propriety of law enforcement's acquisition or use of weaponized robotic devices.[3]

The decision to adopt weaponized robotic devices has been hotly debated on multiple occasions in California. In late 2022, the San Francisco County Board of Supervisors approved a measure that would have allowed the San Francisco Police Department (SFPD) to deploy weaponized robots capable of using deadly force, but reversed its decision just days later after significant public backlash.[4] Public outcry in Oakland halted a similar effort after the police department

---

[1] "Hidden Pentagon Records Reveal Patterns of Failure in Deadly Airstrikes." *New York Times*. 18 December 2021. Hidden Pentagon Records Reveal Patterns of Failure in Deadly Airstrikes - The New York Times (nytimes.com)

[2] "Drone that killed U.S. troops in Jordan likely went undetected." *The Washington Post*. 6 February, 2024. Drone in Jordan attack that killed U.S. troops likely went undetected - The Washington Post; "How the Drone War in Ukraine is Transforming Conflict." *Council on Foreign Relations*. 16 January 2024. How the Drone War in Ukraine Is Transforming Conflict | Council on Foreign Relations (cfr.org)

[3] Gov. Code, § 7071, subd. (a),(c); Gov. Code, § 7070, subd. (c)(1) & (6) .

[4] "San Francisco supervisors bar police robots from using deadly force for now." The Associated Press 6 Dec 2022. https://www.npr.org/2022/12/06/1141129944/san-francisco-deadly-robots-police

initially requested the authority to use robots armed with shotguns under certain circumstances.[5] And in Los Angeles, the City Council postponed a vote on whether to authorize the Los Angeles Police Department to accept the donation of robot for 60 days over concerns about privacy and surveillance, and despite assurances from both the LAPD and the robot manufacture that there were no plans to furnish the robot with weapons.[6]

Despite objections to their use, law enforcement officials argue that armed robotic devices can help ensure the safety of both the public and officers in highly dangerous situations. For instance, in Dallas, after an ambush attack on police left five officers dead, police outfitted a bomb squad robot with an explosive device to kill the suspect who had barricaded himself in a parking garage. According to the Dallas Police Chief, "We saw no other option [after negotiations failed] but to use our bomb robot and place a device on its extension for it to detonate where the suspect was… Other options would have exposed our officers to grave danger."[7] The San Francisco Police Chief noted that police had not yet had to use a robot to kill a civilian, and that police hoped to avoid such use. "But," he added, "we need the option to be able to save lives" if there is an imminent threat to the lives of police officers or civilians.[8]

Many experts caution that opening the door for the use of armed robots or drones by law enforcement, even in limited circumstances, carries significant risks. One stated, "[H]orror stories, or worst examples, can and have opened the door for much more use of that power beyond the most horrific situation… Historically, when we grant police power or discretion or advanced technologies, they tend to be used in many more situations." Another cited uncertainty about potential errors in robotics and automotive technology, citing problems self-driving vehicles.[9]

In 2022, after a video of a rifle bolted to the back of a 'robodog' went viral, the sponsor of this bill, Boston Dynamics, joined several other robotics companies in issuing an open letter in which the companies pledged not to weaponized their general purpose robots, with notable exceptions for military uses.[10] According to the Author, "as robots have become increasingly accessible to the public, there are recent examples of people mounting dangerous weapons to them, often with the goal of creating a sensational, viral social media video. The misuse of weaponized remote controlled or autonomous robots is unethical, poses a serious public safety threat, and damages the public's acceptance of these beneficial technologies in society."

---

[5] "Oakland Police Department says it's no longer considering armed robots." KRON (Oct. 19, 2022) <https://www.kron4.com/news/oakland-police-department-says-its-no-longer-considering-armed-robots/
[6] "City Council delays vote on LAPD robot dog for 2 months." *The Los Angeles Times*. 7 March 2023. https://www.latimes.com/california/story/2023-03-07/la-city-council-tables-police-robot-dog-vote-2-months
[7] "Dallas sniper attack: 5 officers killed, suspect identified." CNN.com. 9 July 2016. https://www.cnn.com/2016/07/08/us/philando-castile-alton-sterling-protests
[8] *"San Francisco supervisors vote to allow police to use robots to kill people*." CNN.com. 30 Nov 2023. https://www.cnn.com/2022/11/30/us/san-francisco-police-remote-control-robots/index.html
[9] "See Spot spy? A new generation of police robots faces backlash." The Los Angeles Times. 21 Dec 2022. https://www.latimes.com/california/story/2022-12-21/lapd-testing-robot-dog-amid-debate-over-arming-police-robots; "Will Lethal-Force Police Robots Come to More Cities?" Pittsburgh Tribune-Review 20 December 2022 https://www.govtech.com/public-safety/will-lethal-force-police-robots-come-to-more-cities
[10] "General Purpose Robots Should Not Be Weaponized." General Purpose Robots Should Not Be Weaponized | Boston Dynamics

3. This Bill Creates an Infraction for Conduct Related to Robotic Devices Equipped with A Weapon

In an attempt to address the issue identified above, the Author proposes this measure to criminalize the manufacture, modification, sale, transfer or operation of a robotic device, as defined, equipped or mounted with a weapon, which includes any device designed to threaten or cause death, incapacitation or physical injury to a person. The bill defines "robotic device" as a mechanical device capable of locomotion, navigation, flight, or movement and that operates at a distance from its operator or supervisor based on commands or in response to sensor data, or a combination of those, including mobile robots, unmanned ground vehicles, and unmanned aircraft.

The bill also includes several exemptions to its central prohibition, including for a defense industrial company, as defined, with regard to robots within the scope of a contract with the federal Department of Defense; for a robotic device developer/manufacturer who is weaponizing robots only to develop technology intended to detect or mitigate unlawfully weaponized robots; and for the United States Department of Defense and its subordinate agencies. In addition, the bill exempts "government officials," such as police, operating a weaponized robot in the performance of their duties when used for the purpose of explosives disposal or property destruction where this is imminent, deadly threat to human life. Thus, under this bill, law enforcement would be prohibited from deploying a weaponized robotic device in all other circumstances, including situations like the one in Dallas described above.

While the bill's exemptions are intended to permit the 'beneficial' use of weaponized robots, they may be too narrow in scope, and inadvertently proscribe other beneficial, or at least harmless, conduct. For instance, the exemption for defense industrial companies only applies to those that have a *current* contract with the DoD, not to companies seeking to become DoD robotics contractors, acting as a potential barrier to entry into the robotics field. The Author and Committee may wish to consider amending this exemption to somehow capture aspiring robotics developers without such an exemption swallowing the rule.

The bill might also capture educational or recreational robotics: since its first event in Long Beach in 1999, BattleBots – in which competitors design and operate remote-controlled armed robots to fight in an arena setting – has been a popular robot-based recreational activity. Many robots that compete in these events are armed with weapons that may fall into the category of weapons prohibited by this bill, such as flamethrowers and cannons and perhaps even certain bladed weapons.[11] Should competitive robotics that involves arming robots be exempted from the bill?

The second exemption to the bill applies to:

> A robotic device developer, manufacturer, or producer who modifies or operates a robotic device equipped or mounted with a weapon for the sole purpose of developing or testing technology that is intended to detect, prevent, or mitigate the unauthorized weaponization of a robotic device.

[11] Category:Weapons | BattleBots Wiki | Fandom

Given the wording of that exempting, it is unclear whether it is intended to apply to robots being developed for the purpose of thwarting *other* armed robots or to the development and testing of a specific robot model so as to prevent the unauthorized weaponization of *that particular model* by the model's users. The Author and Committee may wish to address this ambiguity.

Penalty Assessments

This bill provides that any person who knowingly violates its prohibition against weaponized robots shall be required to pay a fine of at least $1,000 but no more than $5,000. However, the amount spelled out in statute as a fine for violating a criminal offense are base figures, as these amounts are subject to statutorily-imposed penalty assessments, such as fees and surcharges. The fines in this section have not been increased since 2006, however the penalty assessments have increased approximately 40% since 2006 thus increasing the fine that a person actually pays. Current penalty assessments total roughly 310% of the initial fine, so a fine of $1000 for a first offense, for instance, will actually cost an individual $4,100.[12] Taken together with additional fines and assessments, and assuming the defendant received the maximum fine under the proposed bill, the total owed by a person convicted of this crime would be roughly $20,500. Although it is unlikely that this would be a fine for a first offense, given the range of potential fines, the Author and Committee may wish to consider whether these fines are appropriate, especially in light of the fact that individuals charged with an infraction do not have the right to an attorney or a jury trial.

The penalty provision of this bill also specifies that "this fine shall be imposed in addition to any other penalty imposed pursuant to any other laws." It is unclear why this provision was added in the bill, as it is well established that multiple crimes can be alleged by the prosecution provided they do not run afoul the Double Jeopardy Clause of the Fifth Amendment to the U.S. Constitution and existing California law prohibiting multiple punishment for the same 'act.'[13] For instance, if an individual is in possession of a machine gun in violation of Pen. Code §32625, and then affixes that machine gun to a robotic device, that person would be liable for both unlawful possession of a machine gun *and* the prohibition contained in this bill. No provision of existing law implicitly or explicitly prohibits the imposition of multiple punishments for separate and independent unlawful acts.

4. Prior Legislation

AB 79 (Weber, 2023), which was substantially similar to this bill, would have prohibited a person from knowingly manufacturing, modifying, selling, transferring, or operating a weaponized drone or robot, punishable by a fine of between $1,000 and $5,000 dollars. The bill was referred to Assembly Public Safety Committee, amended several times, and set for hearing several times, but each hearing was cancelled at the request of the Author.

---

[12] Until the budget year 2002-2003, there was 170% in penalty assessments applied to every fine; the current penalty assessments are approximately 310% plus a flat fee of $79. (See Penal Code § 1464; Penal Code § 1465.7; Penal Code § 1465.8 Government Code § 70373; Government Code § 7600.5; Government Code § 76000 *et seq*; Government Code §76000.10 Government Code § 76104.6; Government Code §76104,7)

[13] For more information, see Imposition of Multiple Punishments for the Same Offense | U.S. Constitution Annotated | US Law | LII / Legal Information Institute (cornell.edu); Penal Code § 654.

5. Argument in Support

According to Boston Dynamics, the bill's sponsor:

> Our company, founded by an MIT professor and his students over 30 years ago, is at the forefront of an industry in which advanced mobile robots will become more common in both industrial and public spaces. We are the leading provider of walking robots to innovative companies and organizations in California, such as the NASA Jet Propulsion Laboratory in Pasadena. A year ago, we and other leading robot industry organizations published an open letter pledging not to weaponize our advanced-mobility general-purpose robots, and to not support others doing so.
>
> Mounting weapons to robots that are remotely or autonomously operated, widely available to the public, and capable of navigating within locations where people live and work, raises new risks of harm and serious ethical issues. The development and use of such weaponized robots will also harm public trust in the technology in ways that damage the tremendous benefits they will bring to society. Recognizing that our commitment alone is not enough to fully address these risks, we also called upon policymakers to work with us to promote safe use of these robots and to prohibit their misuse. AB 2681 fulfills this crucial vision for ethical and safe robots in society, and we fully support it, as do many others in the robotics community.

-- END –