

# Sneaky Spy Devices and Defective Detectors: The Ecosystem of Intimate Partner Surveillance with Covert Devices

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USENIX Security 2023



## **CONTENT WARNING:**

Descriptions of Domestic Abuse

Descriptions of Surveillance

Intimate Partner Violence (IPV) affects  
**1 in 3 women worldwide**



Of those, **63%** experience **tech abuse**<sup>1,2</sup>



Anecdotal evidence suggests that abusers are using **covert devices** for **intimate partner surveillance** (IPS)

**CBS NEWS**

CRIME >

**"American Idol" winner Laine Hardy arrested in Louisiana for allegedly placing recording device in ex-girlfriend's room**

BY ZOE CHRISTEN JONES  
UPDATED ON: APRIL 29, 2022 / 2:35 PM / CBS NEWS

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AirTags are being used to track people and cars. Here's what is being done about it

February 18, 2022 · 5:37 PM ET  
Heard on [All Things Considered](#)  
By [Michael Levitt](#)

What devices are **available** for abusers to purchase?

How do these covert devices **work**?

Are they **effective** at enabling IPS?

Are **useful** detection tools available for survivors?

# What is a covert device?

## Hideable



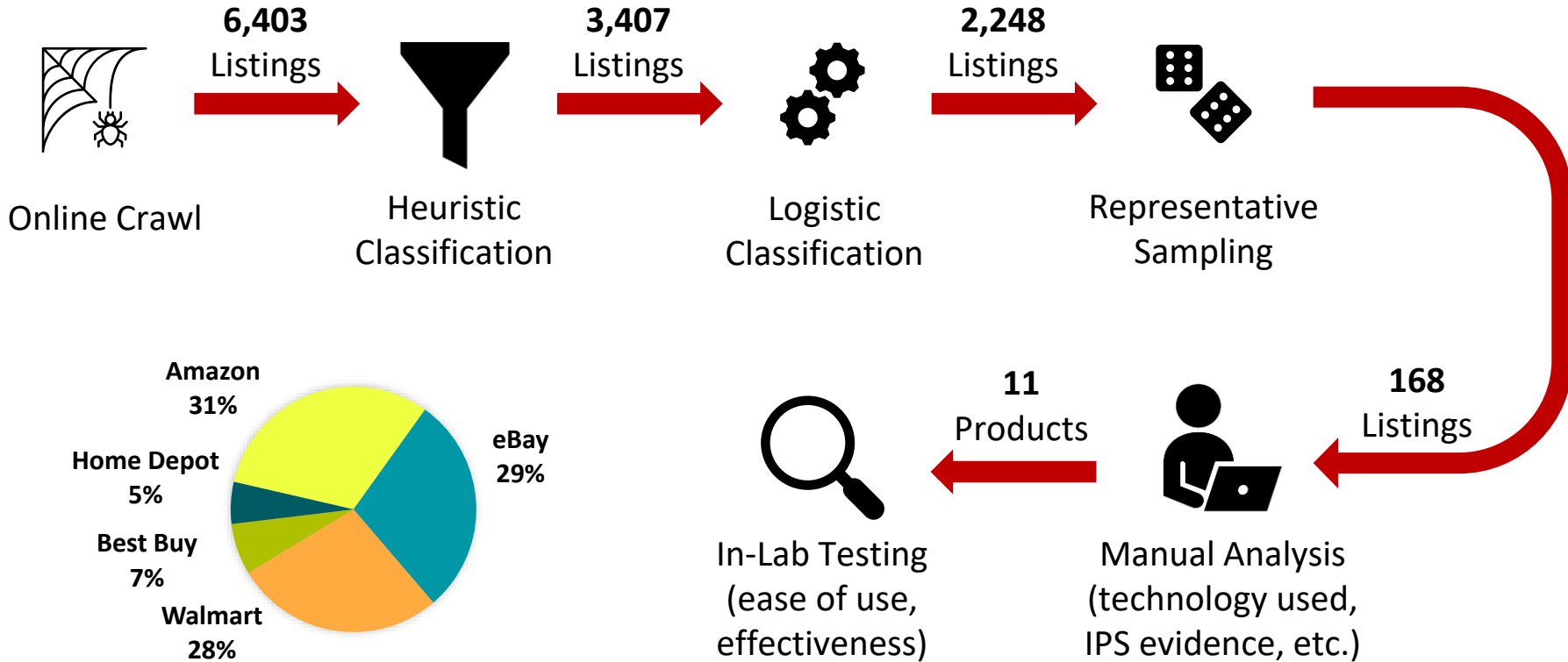
## Disguised



## Not Covert



# Large scale measurement study of covert devices



## Are covert devices **available** to abusers?




TACUWA Spy Camera  
Hidden Camera  
WiFi,Smallest HD Mini  
Spy Cam for Home  
Security Easy to Use  
Wireless Indoor  
Surveillance with  
Motion Detection  
Night Vision

Brand: TACUWA  
2.8 ★★★★★ 63 ratings  
| 8 answered questions

-26% **\$19<sup>99</sup>**  
Typical price: \$26.99

✓prime One-Day



iTrackLTE

**Versatile Vehicle Tracking  
Devices for Cheating Wife  
iTrack PUCK GPS Tracker**

**\$56.38**

Over 50% of devices cost **less than \$20**



## Are device sellers aware of IPS?

**13 (7%)** of the devices we analyzed **explicitly advertised for IPS**

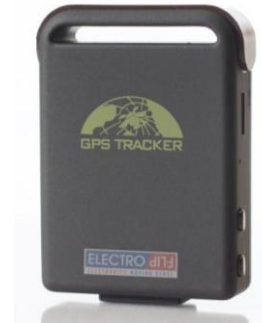


iTrack 2.0

**Catch Cheating Spouse  
w/ NEW iTrack GPS  
Tracker Cheaters Spy  
Equipment**

**\$55.99**

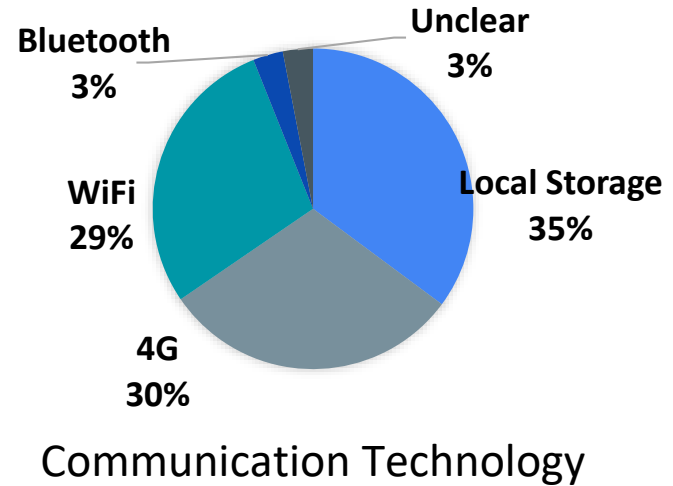
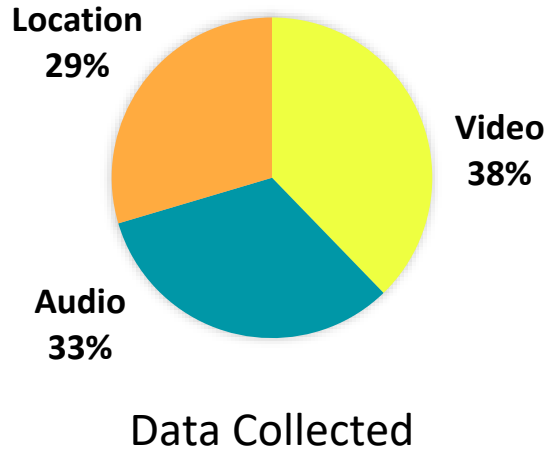
**Find Spouse Cheating Affair Spy  
Surveillance GPS Tracking Device**



**Neither Amazon, eBay, nor Walmart forbid devices from promoting IPS**

*“Best device ever! This little gem has won me tons of arguments and now my husband can no longer do sneaky things behind my back!”*

# What **types** of devices are there? Are they **effective** at enabling IPS?



These devices are **easy to set up and use** and **effective at recording sensitive information**

Covert devices are **available, cheap, and effective**

Are **useful** detection tools available for survivors?

Identification



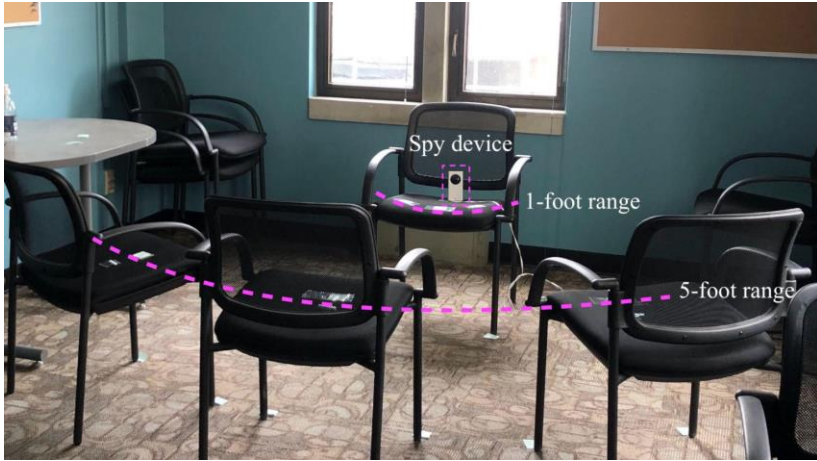
Localization



Usability

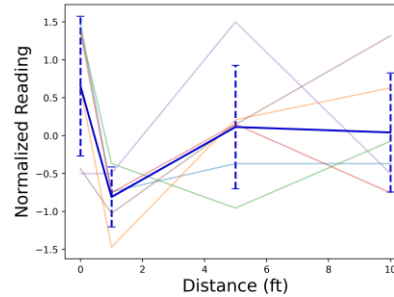


# Do commercial detectors work?

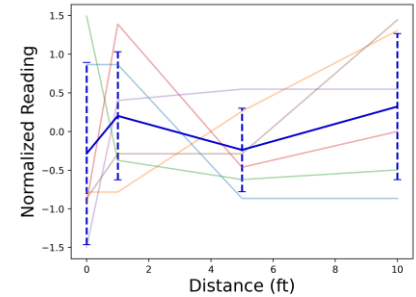


Experimental Setup

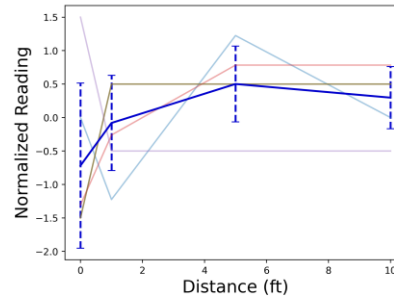
Android App 1



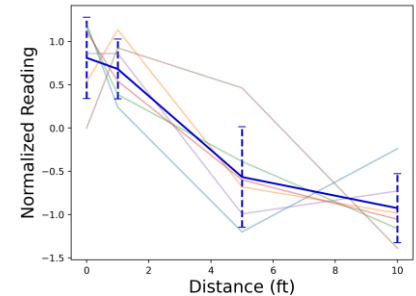
Android App 2



iPhone App



Physical Detector



**None of the commercial detectors could detect devices**

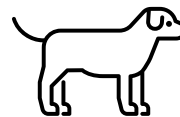
# Are academic device detection systems any better?

USENIX Security 2021

## I Always Feel Like Somebody's Sensing Me! A Framework to Detect, Identify, and Localize Clandestine Wireless Sensors

Akash Deep Singh, *University of California, Los Angeles*; Luis Garcia, *University of California, Los Angeles, and USC ISI*; Joseph Noor and Mani Srivastava, *University of California, Los Angeles*

SnoopDog



- Requires **user tuning** to detect
- Tuning requires **knowledge of the presence of devices**

USENIX Security 2022

## Lumos: Identifying and Localizing Diverse Hidden IoT Devices in an Unfamiliar Environment

Rahul Anand Sharma, Elahe Soltanaghaei, Anthony Rowe,  
and Vyas Sekar, *Carnegie Mellon University*

Lumos



- Did not work in lab setting
- Still a **prototype**

**Both** systems are inappropriate for survivors

# What do we need to empower survivors?



**Usable and effective**  
techniques to detect **diverse**  
devices

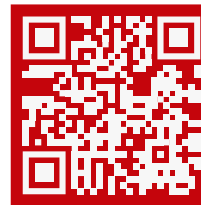


Policies that **prohibit** the  
sale of devices that  
**advertise IPS**



Guidelines for developers  
to design devices that **resist**  
IPS use

**ceccio@wisc.edu**  
**ceccio247.github.io**



**GitHub Repo**