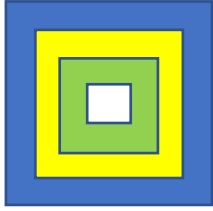


# Video Camera System Features

- Acts as a deterrent
  - Provides arrest and prosecution evidence
  - Can be linked to home lighting controls as well as integral flood lights to alert burglars that they have been detected prior to home entry
- System elements
  - Video recorder
    - Local – Network Video Recorder
    - Remote – Cloud storage via internet
  - Cameras
    - Wire-Free, Wireless, Wired, Power over Ethernet (POE)
    - Smart phone linked 2-way audio capable cameras available



# Video Camera System Design Considerations

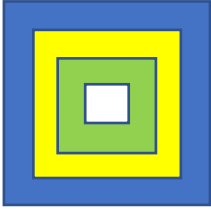
- Design your system to sense intruders at the limits of your property
- False detects are an issue
  - Excessive false alarm rates for motion activated cameras can lead to “smart phone alert fatigue”
  - Systems that record continuously avoid excessive real time alarms while retaining critical visual information for later use
- Good facial imaging is important as evidence for arrest and prosecution
  - Better results at smaller camera angles (<30 deg) to the subject
  - Consider loss of a camera the cost of getting good facial recognition data
  - Image resolution is a function of array size, field of view, distance and lighting
    - More pixels is better
    - More sensitivity under low light conditions is better



# Video Camera Installation Assessment

Type	PRO	CON
<b>Wire-Free</b> <ul style="list-style-type: none"><li>• Power – Battery</li><li>• Data – Home Wi-Fi network</li></ul>	<ul style="list-style-type: none"><li>• No cables to install</li><li>• No home video recorder</li><li>• Lowest installed price</li></ul>	<ul style="list-style-type: none"><li>• Battery recharge every 3-6 months</li><li>• Cloud storage fees</li><li>• Event recording uses Wi-Fi bandwidth</li></ul>
<b>Wireless</b> <ul style="list-style-type: none"><li>• Power – 110 VAC wiring</li><li>• Data – Home Wi-Fi network</li></ul>	<ul style="list-style-type: none"><li>• No battery recharging</li><li>• No home video recorder</li></ul>	<ul style="list-style-type: none"><li>• Requires AC power at camera</li><li>• Cloud storage fees</li><li>• Event recording uses Wi-Fi bandwidth</li></ul>
<b>Wired</b> <ul style="list-style-type: none"><li>• Power – 110 VAC wiring</li><li>• Data – Video or Cat5 cable</li></ul>	<ul style="list-style-type: none"><li>• No battery recharging</li><li>• Local video recording</li><li>• No cloud storage fees</li></ul>	<ul style="list-style-type: none"><li>• Requires AC power at camera</li><li>• Requires data cable from camera to network video recorder (NVR)</li><li>• Requires NVR purchase</li></ul>
<b>Power over Ethernet (PoE)</b> <ul style="list-style-type: none"><li>• Power and Data – Single Cat5 cable</li></ul>	<ul style="list-style-type: none"><li>• No battery recharging</li><li>• Local video recording</li><li>• No cloud storage fees</li></ul>	<ul style="list-style-type: none"><li>• Requires Cat5 cable between camera and network video recorder (NVR)</li><li>• Requires NVR purchase</li></ul>

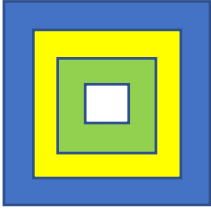
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# Video Camera Description Information

Display Names	Array Dimensions (Pixels)	Array Size (Pixels)	Trade Name
720p/HD	1280 H x 720 V	921,600	1 Megapixel
1080p/FHD	1920 H x 1080 V	2,073,600	2 Megapixel
	2048 H x 1536 V	3,145,728	3 Megapixel
	2592 H x 1520 V	3,939,840	4 Megapixel
	2594 H x 1944 V	5,042,736	5 Megapixel
UHD/4K	3840 H x 2160 V	8,294,400	8 Megapixel
8K	7680 H x 4320 V	33,177,600	32 Megapixel

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# Video Doorbell 2 MP Image – (160 deg FOV)



5 ft



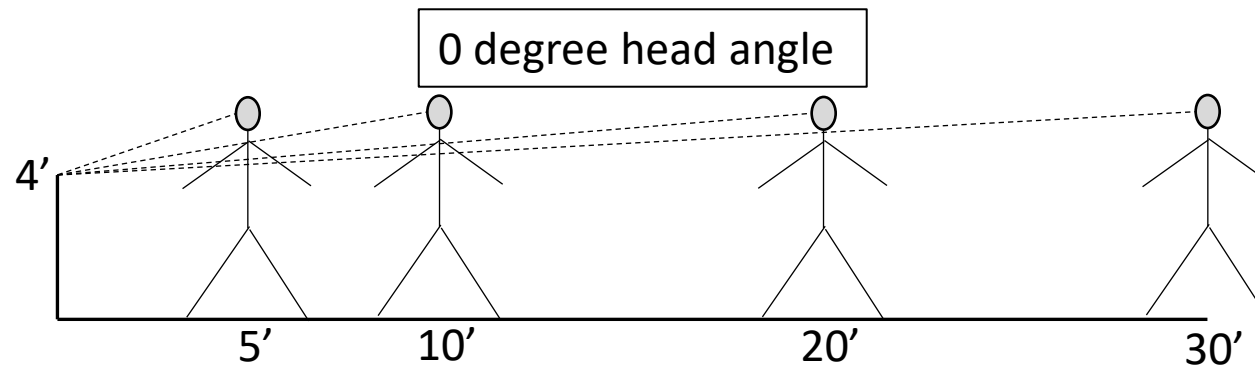
10 ft



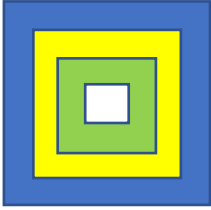
20 ft



30 ft



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# Video Camera 5 MP Image – (140 deg FOV)



5 ft



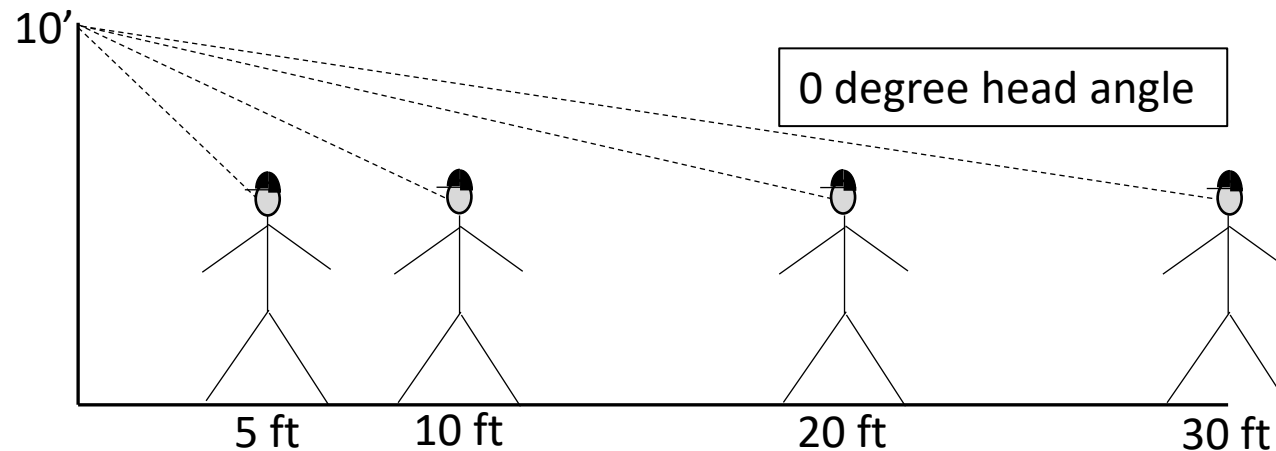
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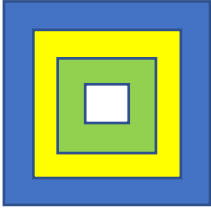
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30 ft



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# Video Camera 5 MP Image – (140 deg FOV)



5 ft



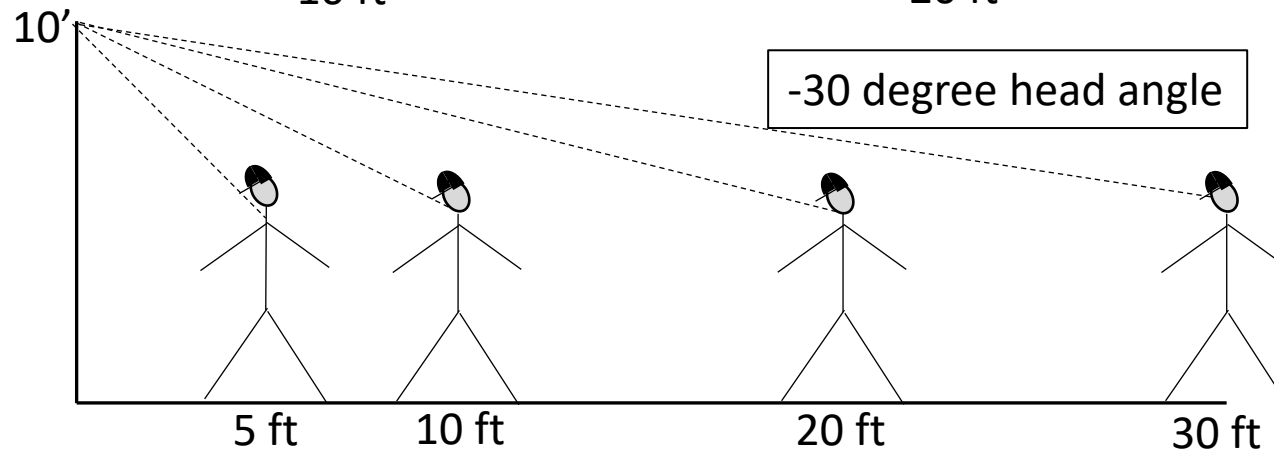
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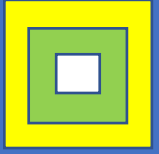


# Video Doorbell System Comparison

Vendor	Install	Mounting	Resolution	Remarks	Cost
Arlo	DIY	Wire – Free WiFi	2 MP	Motion activated, 110 deg FOV, cloud storage \$3/mo (7d) - \$15/mo (60d)	\$160
Nest	DIY Pro	Wired WiFi	3 MP	Motion activated, 160 deg FOV, cloud storage \$50/yr (5d) - Prepaid	\$229 \$379
Ring	DIY	Wired WiFi	2 MP	Motion activated, 160 deg FOV, cloud storage \$3/mo (60d)	\$249
SimpliSafe	DIY	Wired WiFi	2 MP	Motion activated, 162 deg FOV, cloud storage \$5/mo (30d)	\$169
ADT	Pro	Wired WiFi	1 MP	Motion activated, 180 deg FOV, available through ADT as part of a total system - 36 mo contract	Custom
Nortek GC-DBC-1	Pro	Wired WiFi	1 MP	Motion activated, 180 deg FOV, available through Nortek as part of 2GIG system, \$15/mo (30d)	Custom
Vivint	Pro	Wired WiFi	1 MP	Motion activated, 180 deg FOV, available through Vivint as part of a total system, \$45/mo (30d) - 60 mo contract	\$940

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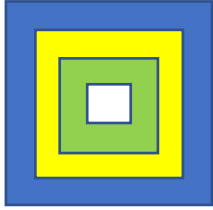




# Video Camera System Comparison (4 Cameras)

Vendor	Install	Mounting	Resolution	Remarks	Cost
Arlo Ultra VMS5440	DIY	Wire-Free Wi-Fi	8 MP	Motion activated, 180 deg FOV, audio, siren, spotlight, cloud storage \$10/mo (30d)	\$1,000
Nest Cam IQ	Pro	Wired Wi-Fi	2 MP	Motion activated, 130 deg FOV, audio, on camera active indicator, cloud storage \$30/mo (30d)	\$1,200
Ring Spot Cam	DIY	Wire-Free Wi-Fi	2 MP	Motion activated, 140 deg FOV, audio, siren, spotlight, cloud storage \$10/mo (60d)	\$599
ADT OC835	Pro	Wired Wi-Fi	1 MP	Motion activated, 95 deg FOV, cloud storage available through ADT - 36 mo contract	Custom
Eastern CCTV	Pro	Wired PoE	8 MP	Motion activated or continuous w/NVR, 110 deg FOV, available through Nortek resellers	Custom
Vivint	Pro	Wired Wi-Fi	2 MP	Motion activated, 112 deg FOV, Available through Vivint as part of a total system, monitoring \$45/mo - 60 mo contract	Custom
Lorex 4KHDIP822NWW	DIY Pro	Wired PoE	8 MP	Motion activated or continuous w/NVR, 110 deg FOV, smart phone app included	\$1,500 Custom

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# Burglar Alarm/Video Camera Companies and Local Installers

- Manufacturers

- Arlo (<https://www.arlo.com>)
- Nest (<https://nest.com>)
- Ring (<https://ring.com>)
- SimpliSafe (<https://simplisafe.com>)
- ADT (<https://www.adt.com>)
- Nortek(2GIG/GoControl) (<https://www.nortekcontrol.com>)
- Lorex (<https://www.lorextechnology.com>)
- Vivint (<https://www.vivint.com>)

- Local Installers

- Sentinel (<https://www.sentinelsecuritysolutions.com>) – (805-773-6100)
- Smith's Alarm & Electronics ([www.smithane.com](http://www.smithane.com)) – (805-619-4510)
- ADT (<https://www.adt.com/local/ca>) – (800-246-9147)
- Safe 'n Sound ([www.mysafesound.com](http://www.mysafesound.com)) – (805-215-7169)