

An Introduction to Smart phones and Photography

Good afternoon,
my name is Brian Hillier

This afternoon my talk will cover

- Early mobile phones
- What is a Smart phone
- Features of Smart phones
- Emphasis on Camera capabilities
- Popular phones and their cost
- Do I need a smart phone?

Early mobile phones

- Early mobile phones were not smart phones
- Made calls, and recorded messages
- Sent and received text messages
- Speed dial
- These phones used analogue signals

Early mobile phones were like these



What are Smart phones

- Mobile phones with computer capabilities
- **They run Applications**
- *like - Email , Facebook, WhatsApp,*
- **Camera**
- *With Photo gallery and albums*
- **And Telephony**

Apple iphone 6

Some apps (Applications)

Telephone

Camera

Gallery

Games

Internet

Mail

Maps

WhatsApp

Uber



Operating Systems

- Smart phone is a computer that needs an operating system
- IOS – Iphone Operating System
 - Developed by Apple for use on all Apple mobile devices
 - IOS is consistently maintained by Apple to ensure Apple mobile devices are compatible
- Android – Used In all non Apple phones
 - Developed by Google
 - Uses the Linux programming language
 - Not all manufacturers offer speedy upgrades

Smart phone capabilities

Apps (*Applications*)

- Internet, Games, Maps, Uber

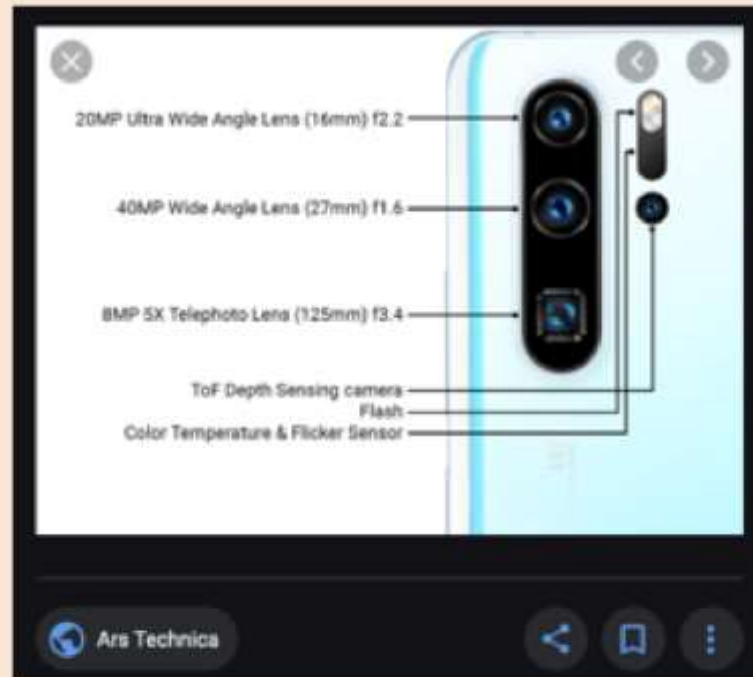
Photography

- Lenses, Wide, Normal & Telephoto lenses
- Range of photographic activities

Telephony

- Contacts, Text, Speech, Voice-Mail

An iphonewith 3 built-in lenses & flash



Photos of Clip-on Lenses



Wide variety of Clip-on Lenses

- Wide angle
- Telephoto
- Fish-eye



Smart Phone photo capabilities

- **Photo** *Still photos, Live Photos 2-3s moving*
- **Square** *Still photo, square format (Rollei-flex style)*
- **Slo-Mo** *Slow motion, several speeds 60, 120, to 960*
- **Video** *4.5 to 15 hrs - based on 64GB memory*
- **Time-Lapse** – *do not have and example of this*
- **Pano** *Panoramic - You pan / camera splices*
- **Zoom** *either fixed or can be varied*

Krackow

Basilica of Saint Mary

*Using buit-in
Normal Lens*



Warsaw

The Ariel
A restaurant
in old Jewish
quarter



London

*A view from
Walki-Talki
Building*



London

A view from
Walki-Talki
Building





In default mode, this iPhone 8 Plus image has very little background blur.



The iPhone 8 Plus's Portrait mode uses the second camera to estimate depth and to blur the background.



Image captured with the RGB sensor in the Huawei Mate 10 Pro.



Crop

Slow motion – Frames per Second

- 24 fps movies - 60 fps for smart phones
- 960 fps = 16 time slower (ie $960/30=32$)
- 240 fps = 4 times slower
- 120 fps = 2 time slower
- *One can adjust the speed on some iphones*



To see Slow-motion Bursting water balloons go to

- <https://www.youtube.com/watch?v=7s1pK1hGqnQ>

Zoom Lenses

- *Built in lens may be*
- *16 mm – $f2.4$ - Super Wide angle*
- *26 mm – $f1.6$ - Normal*
- *52 mm – $f2.4$ - Portrait & Telephot*
- *Can vary with Clip-on-Telephoto lenses*

Huawei Pro 1, 5, 10x

Using each of the
three fixed
built in lenses



Huawei Pro
1, 5, 10, 24x

Each of the
four fixed
lenses





Scene shot using the main camera of a Huawei Mate 20 Pro in 10MP mode.



The same scene shot using the Huawei Mate 20 Pro's 8MP 3x telephoto module.

- Panoramic



Pause (k)



To see this Panorama where the young woman is repeated several times go to

<https://www.youtube.com/watch?v=wF2u0NJUDqk>

The photos taken during panning



The final panoramic image



Photos taken during Panning



Final panoramic image



Macro photography



Using a Clip-on Macro Lens





iPhone 6
Normal
Lens
Very good
Depth of
Field

Some popular phones

Apple iPhone – 11, X, 8, 7, 6,

 Variants called Pro, Max, Plus, S, X

Huawei – Y9, Nova, Enjoy, Mate, P30, P20

 Variants called 5, 10, s, e, z, Pro, s, X Lite

Samsung – Note, Galaxy

 Variants called 10, 10+, S10, e, A90, 80,70

How much do Smart phones cost

•Apple	7	8	XR	XS	11	11-Pro
•Cost	£213	£330	£549	£799	£1089	£1249
•Huawei	P20	P20	P30	Mate	20X	RS
•Cost	£218	£319	£629	£799	£999	£1179
•Samsung	A50	A70	S10	S10	Note	10-Plus
•Cost	£225	£272	£529	£709	£949	£1099

What Smart phone should I buy/need

Your requirements

- Camera – Lenses built in, clip on?
- Games, Maps, Social media, etc?

Do you watch films, play games,
Upgrades? *Probably not*

Holme Lacey, Herefordshire



I hope you have enjoyed
my presentation of
Smart phones

Thank you for looking and listening