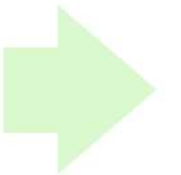


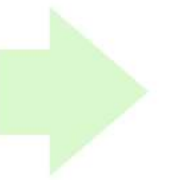
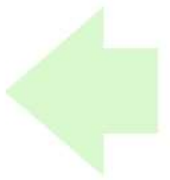
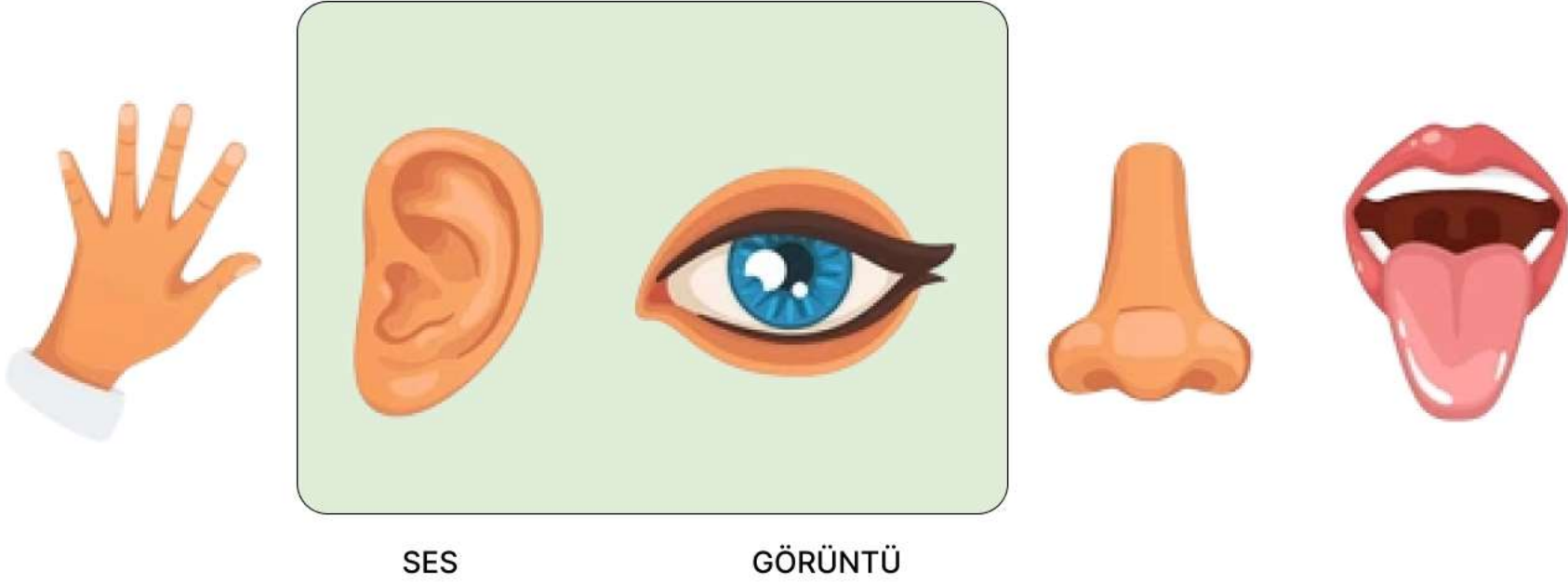
DİJİTALLEŐTİRME

Hüseyin Ünal
hunal@aa.com.tr

Sunum İeriđi

- Neleri Dijitalleřtirebiliriz?
- Dijitalleřtirme Nedir ?
- Dijitalleřtirme Kavramları
- Resim ve Belgelerin Dijitalleřtirilmesi
- Dijitalleřtirme Teknolojileri
- Seslerin Dijitalleřtirilmesi
- Videoların Dijitalleřtirilmesi
- Genel Deđerlendirme

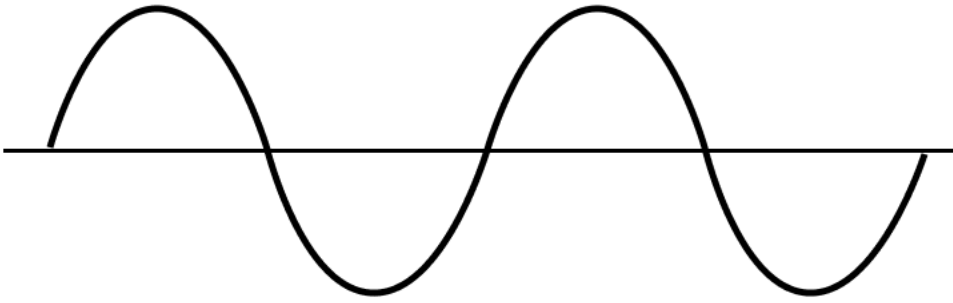




Sinyal

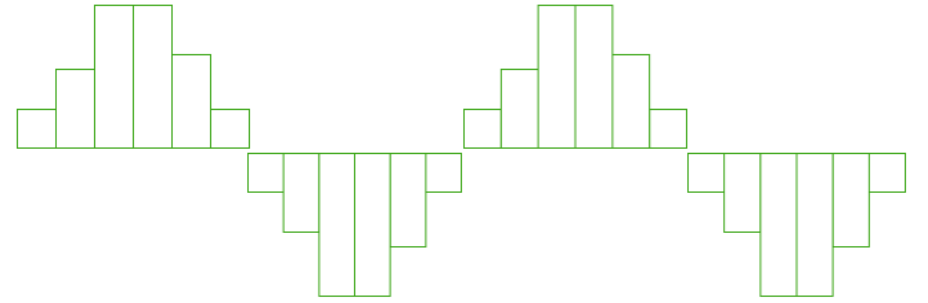
Işık

ANALOG

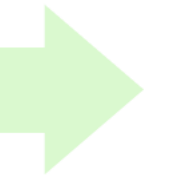


Sürekli akış, birimler arası sonsuz değer üretebilme (teorik olarak)

DİJİTAL



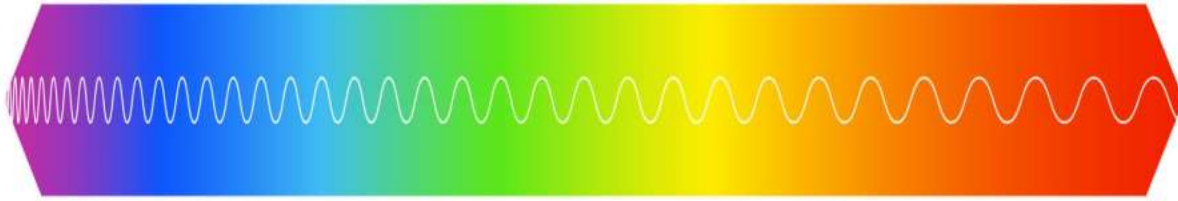
Akış kesintili, kesintileri oluşturan birim arasında ara değer yok



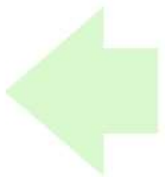
Sinyal

Işık

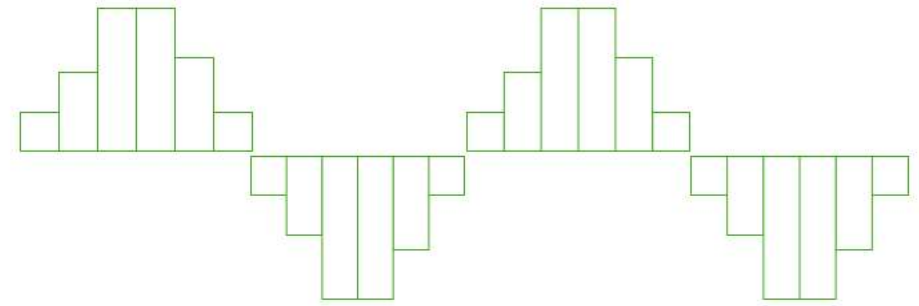
ANALOG



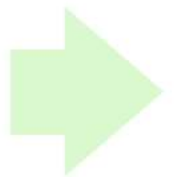
Sürekli akış, birimler arası sonsuz değer üretebilme (teorik olarak)



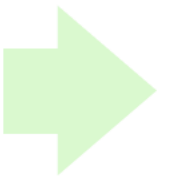
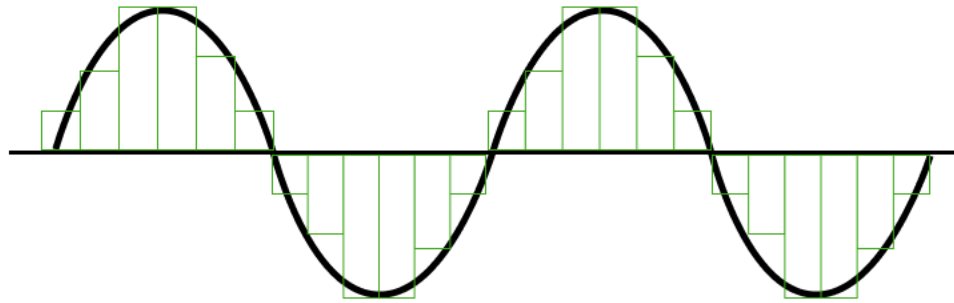
DİJİTAL



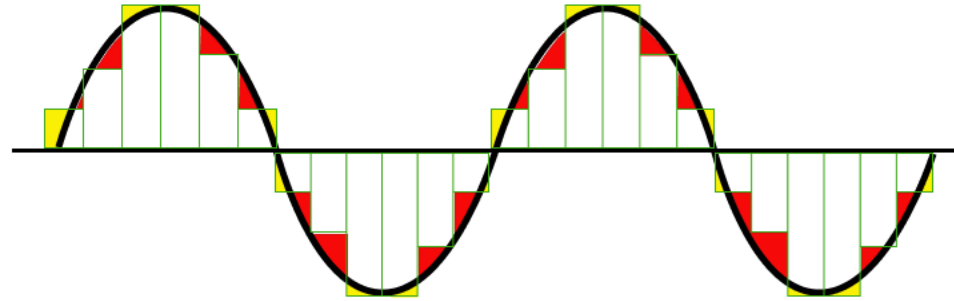
Akış kesintili, kesintileri oluşturan birim arasında ara değer yok



ANALOG → DİJİTAL

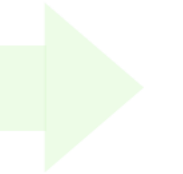


ANALOG → DİJİTAL



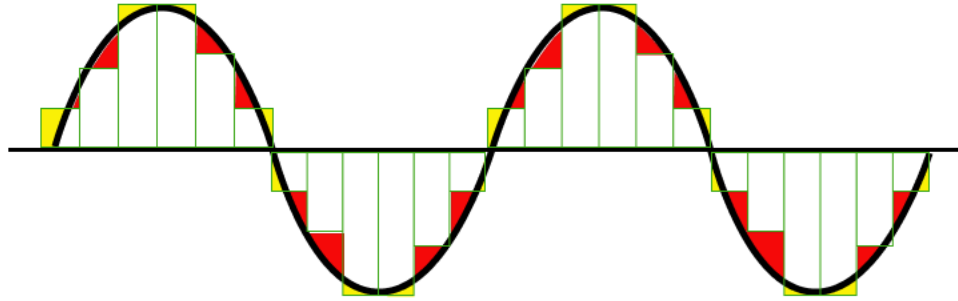
■ Veri Kaybı

■ Yorumlama



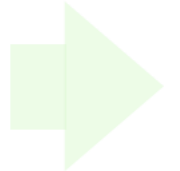
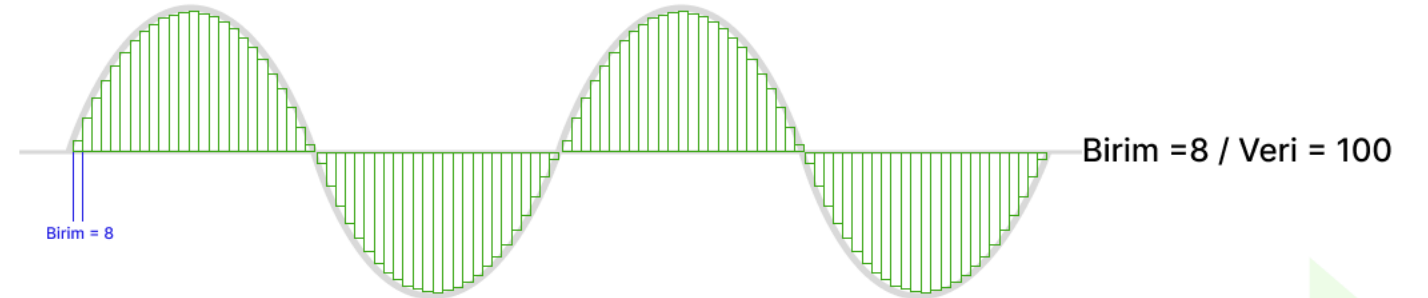
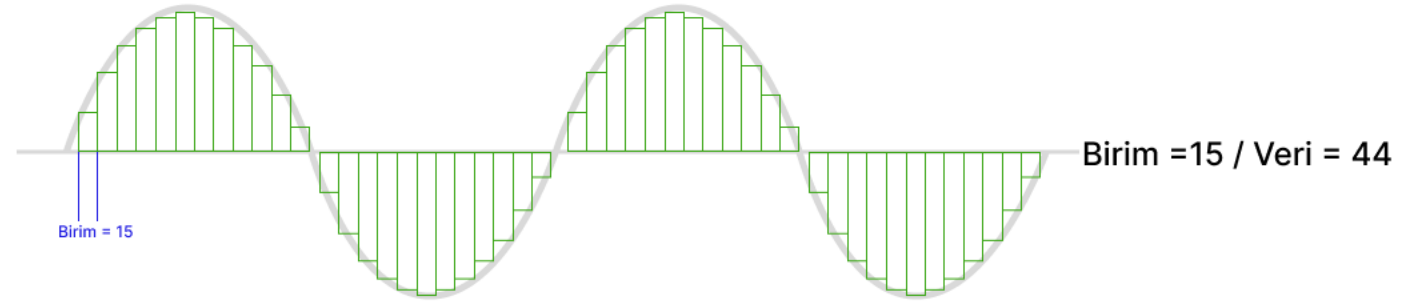
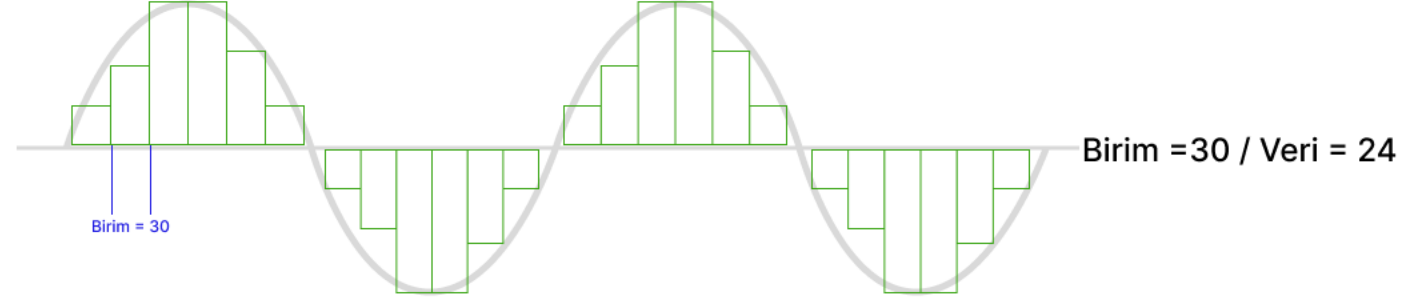
ÇÖZÜNÜRLÜK

ANALOG → DİJİTAL



Veri Kaybı

Yorumlama

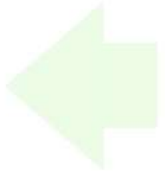




DÜŐÜK ÇÖZÜNÜRLÜK



YÜKSEK ÇÖZÜNÜRLÜK





Piksel



ÇÖZÜNÜRLÜK : En, boy veya zaman bakımından kendi içinde standardı olan (değişmeyen), bir bütünü oluşturan parça sayısıdır

RESİM

DPI : Dot Per Inch (İnç kare balına düşen nokta sayısı)

PPI : Pixel Per Inch (İnç kare balına düşen pixel sayısı)

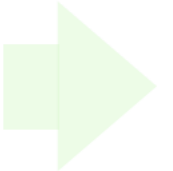
DİJİTAL SES

kHz : Kilohertz (saniye başına alınan ölçüm nokta sayısı)

DİJİTAL VIDEO

300dpi/16bit

DEĞER : Çözünürlükte belirlenen birimlere atanacak değer ve türünü ifade eder.
Bu resim formatları için renk derinliği, ses dosyaları için bit olarak adlandırılır.
Video formatlarında ise her iki kavram da aynı anda kullanılır

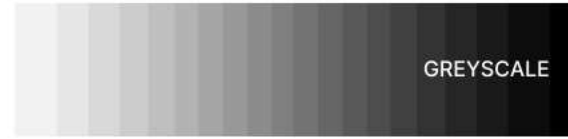


RENK DERİNLİĞİ

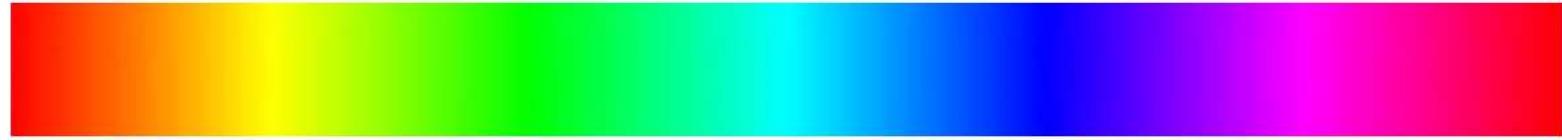
1 Bit Tek Renk



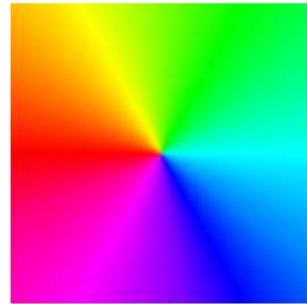
8 Bit 0- 256 Renk



16 Bit

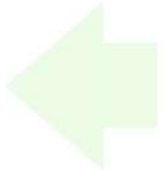


24 Bit



BINARY

ikilik sistem



RENK DERİNLİĞİ

1 Bit



Monochrome

0/1

8 Bit



Greyscale

RGB

00000000/11111111

16 Bit



RGB

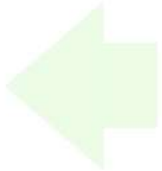
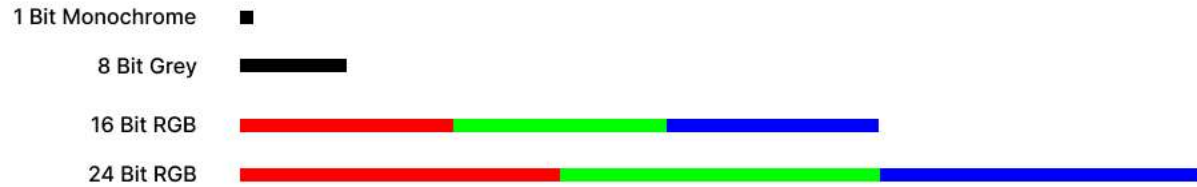
0000000000000000
/
1111111111111111

24 Bit

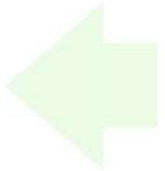
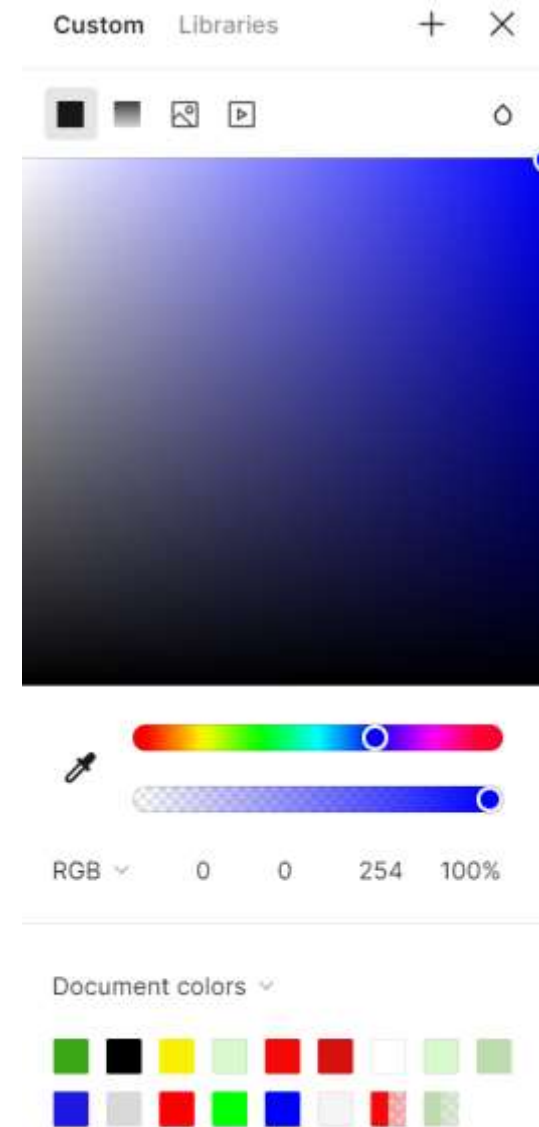
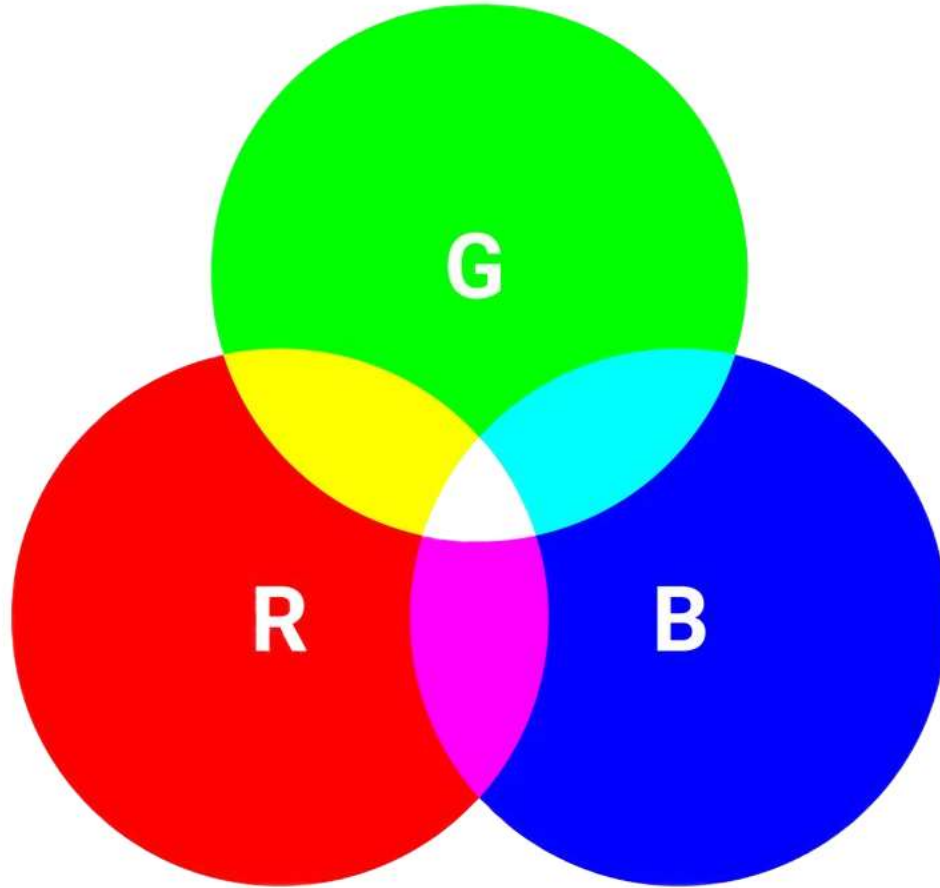


RGB

000000000000000000000000
/
111111111111111111111111

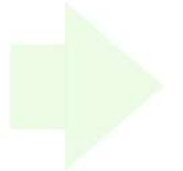
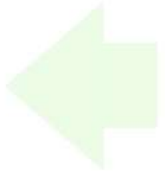
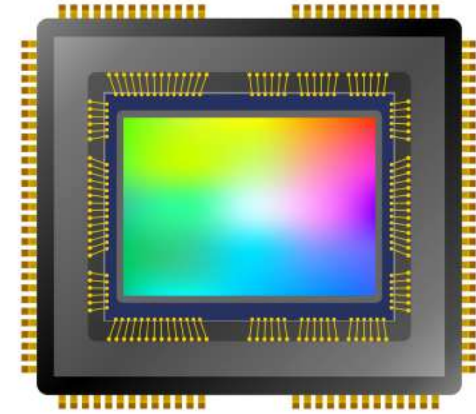
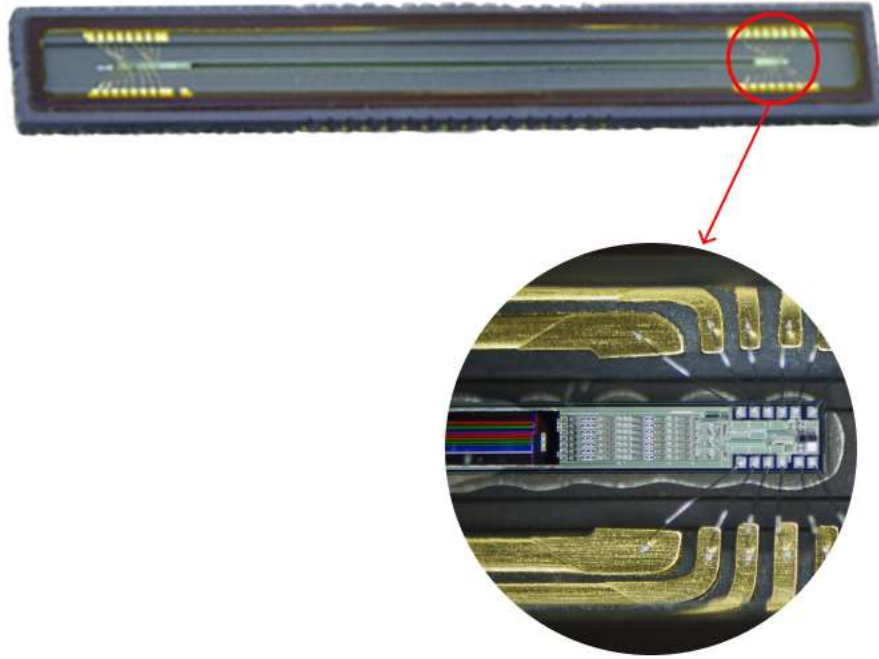


RENKLERİN OLUŞMASI



SENSÖRLER

CCD



TARAMA PRENSİPLERİ

Alan Tarama

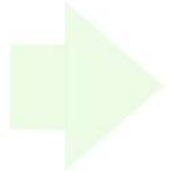
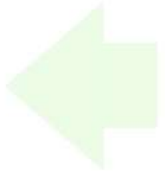


CMOS

Satır Tarama



CCD



TARAMA CİHAZLARI

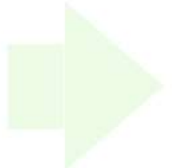
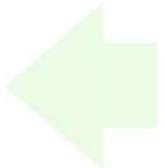
Flat Tarayıcı

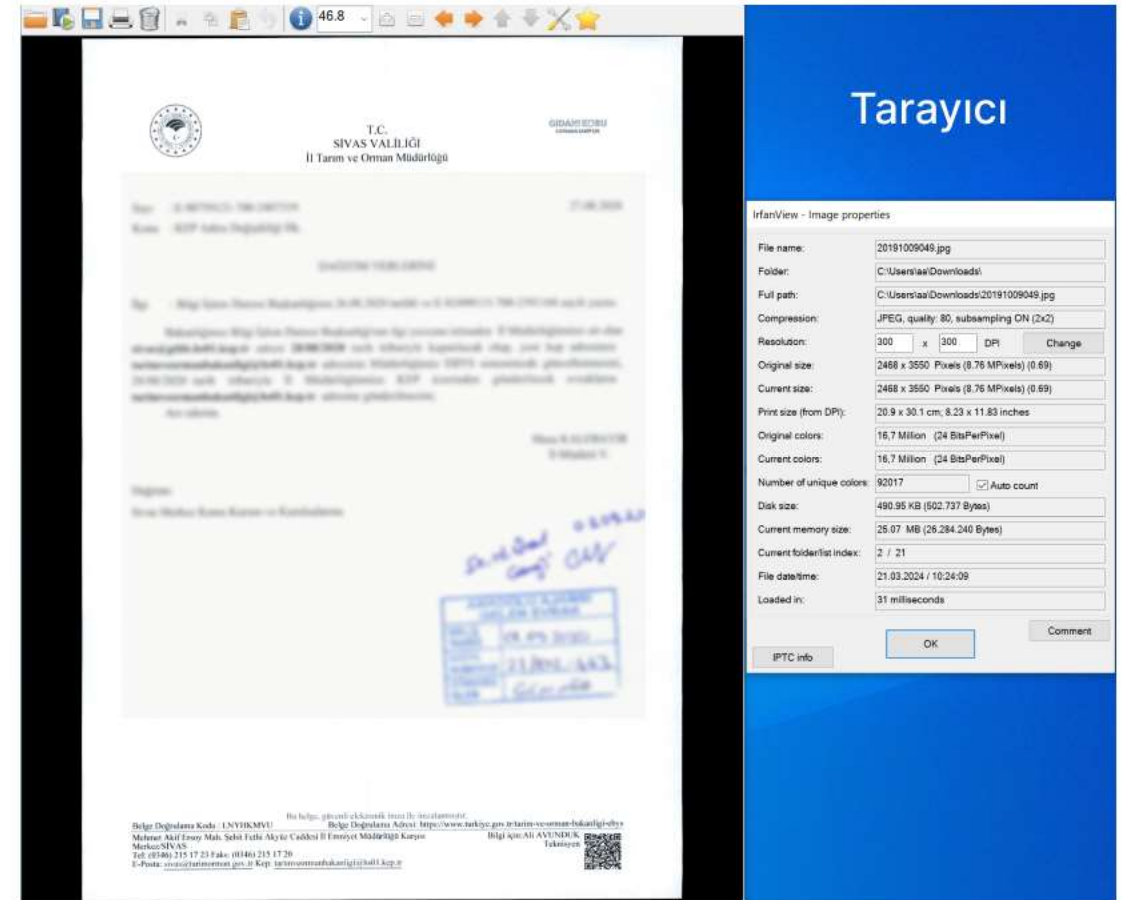
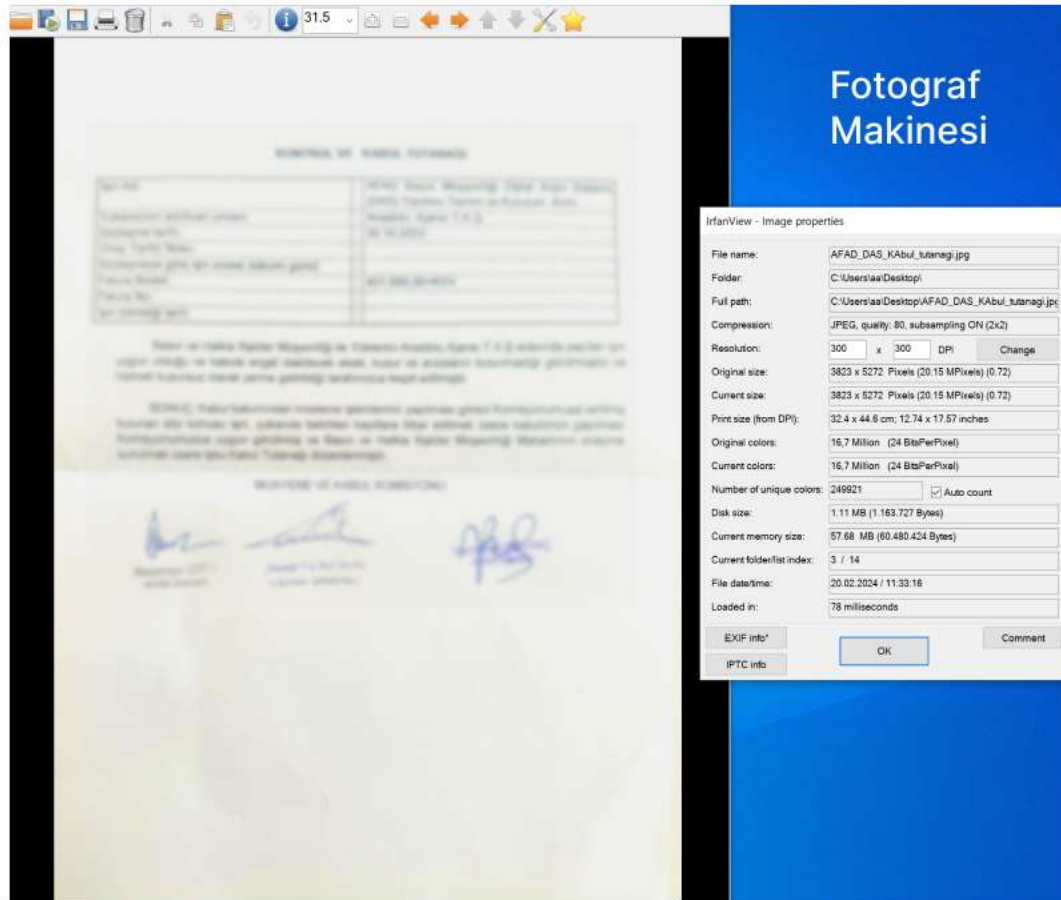
AFD Hızlı Tarayıcı

Kamera Tipi Tarayıcı

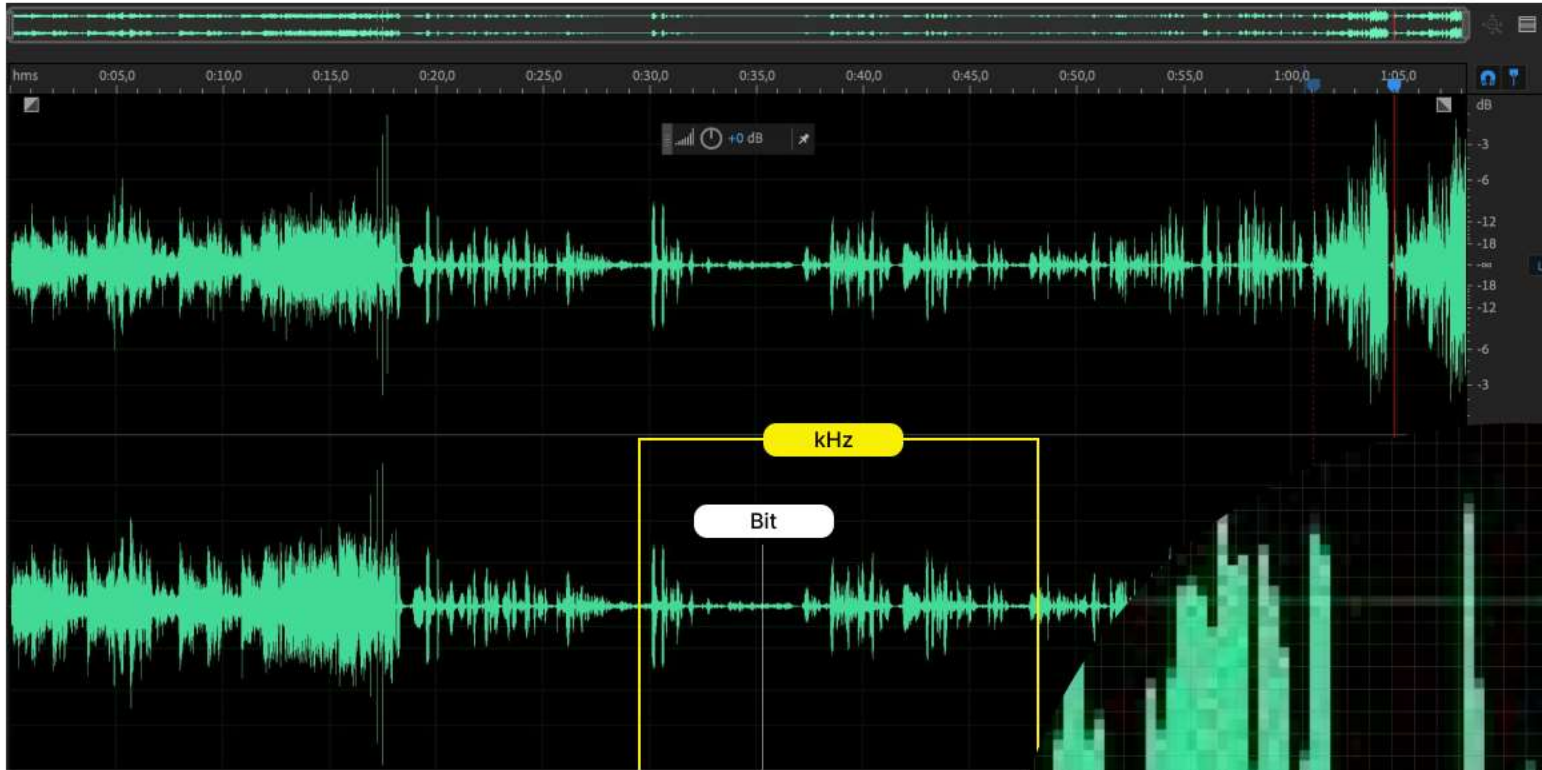
Tambur Tarayıcı

Robot Tarayıcı



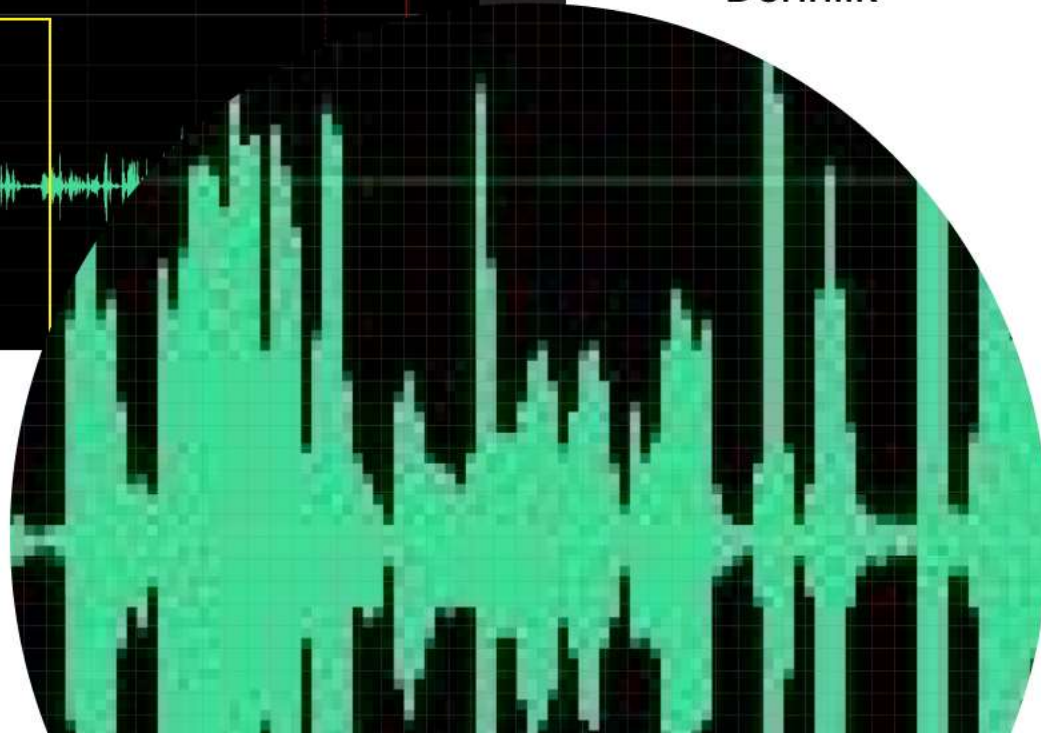


Seslerin Dijitalleştirilmesi



Örnekleme sayısı = kHz

Derinlik = Bit



Seslerin Dijitalleştirilmesi



CD 44,1 kHz/saniye
16 Bit

44,1 kHz sesin her bir saniyesi için 44.100 örneklem alınmıştır

44,1 kHz / 16 Bit kalitesinde bir sesin bir saniyelik boyutu

$$44,100 \times 16 = 705,600 \text{ bit}$$

$$705,600 \text{ bit} / 8 = 88.200 \text{ byte}$$

$$88.200 \text{ byte} / 1024 = 86 \text{ Kb}$$

$$1 \text{ Sn} = 86 \text{ Kb}$$

$$60 \text{ Sn} = 5,167 \text{ KB} = 5 \text{ Mb}$$

$$1 \text{ Saat} = 300 \text{ mb}$$



Videoların Dijitalleştirilmesi



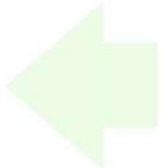
Frame Size : Görüntü boyutu

HD	: 1280 × 720 piksel
Full HD	: 1920 × 1080 piksel
QHD	: 2560 × 1440 piksel
Ultra HD	: 3840 × 2160 piksel
8K	: 7680 × 4320 piksel

Sample Rate : kHz (ses için + kanal sayısı)

Frame Per Second (FPS) : Çerçeve Sayısı / 1 Sn

16 - 24 - 30 - 30



TEŐEKKÜRLER

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