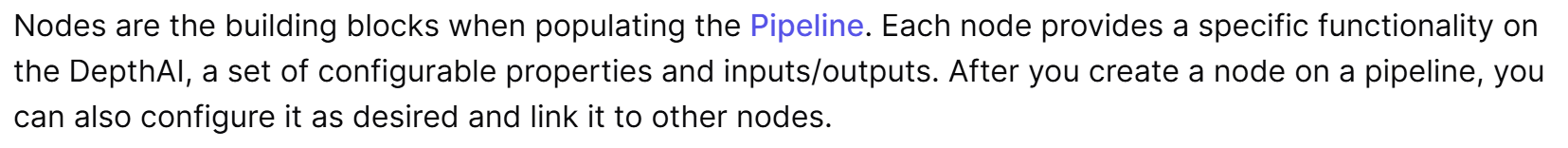
A diagram of a software development process

Description automatically generated with medium confidence

Sursa : <https://docs.luxonis.com/software/>

IMPORTANT: <https://docs.luxonis.com/software/depthai-components/pipeline/#depthai.Pipeline.createSpatialLocationCalculator> aici sunt toate functiile ce se pot aplica pe un **pipeline**

****

**A diagram of pool and pool

Description automatically generated**

IMPORTANT: <https://docs.luxonis.com/software/depthai-components/nodes/> diferite functii ce se pot aplica pe noduri

Pipeline-ul definește ce sarcini vor fi executate pe dispozitiv, reducând astfel sarcina pe computerul gazdă -> ca sa nu iei de pe unframe toate posibilitatile, pipeline ul iti ia doar ce ai nevoie

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Description automatically generated

**Pipeline-ul simplifica si optimizeaza fluxul de informatii ce vin de la camera in cod.**

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A screenshot of a computer

Description automatically generated

A screenshot of a computer

Description automatically generated



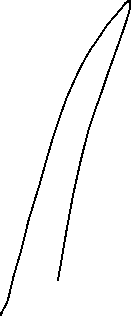
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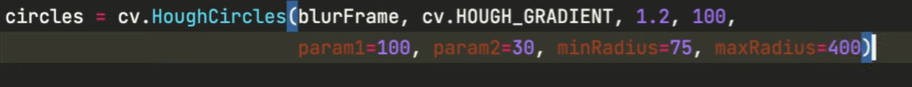


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Pentru detectia cercurilor din imagine:



**dp=** arund 1.2-1.4

**minDist**= distanta dintre 2 centru ale 2 cercuri

- daca vrem un singur cerc, punem numar mare

**Param1** = sensitivity

-daca e prea mare nu va gasi suficiente cercuri, daca e mic, gaseste multe cercuri

**Param2** = accuracy of circle detection, number of edge point that are needed to declare that there is a circle

-too high, nu va gasi suficiente, too low, many circles

**minRadius**= minimum size of the circle can be detected

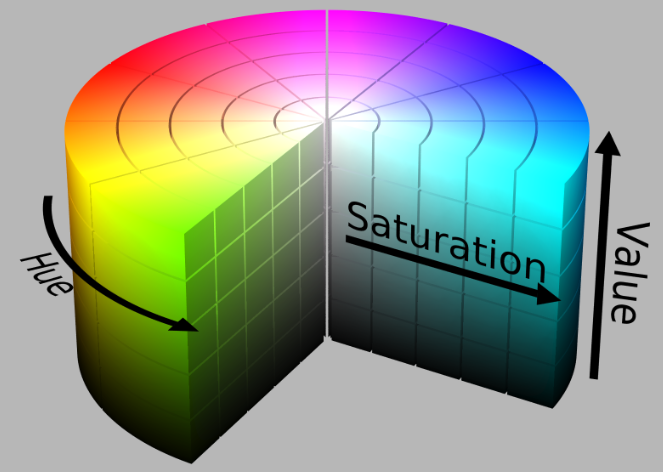
**maxRadius**= cand se apropie de camera, creste diametrul

* Returneaza o lista de cercuri care au aceasta proprietate

Link care m-a ajutat sa fac: <https://www.youtube.com/watch?v=RaCwLrKuS1w>



Pentru a detecta culori:

 Sursa: <https://www.react-graph-gallery.com/what-is-a-color>

link de unde am luat codul pentru detectia culorii:

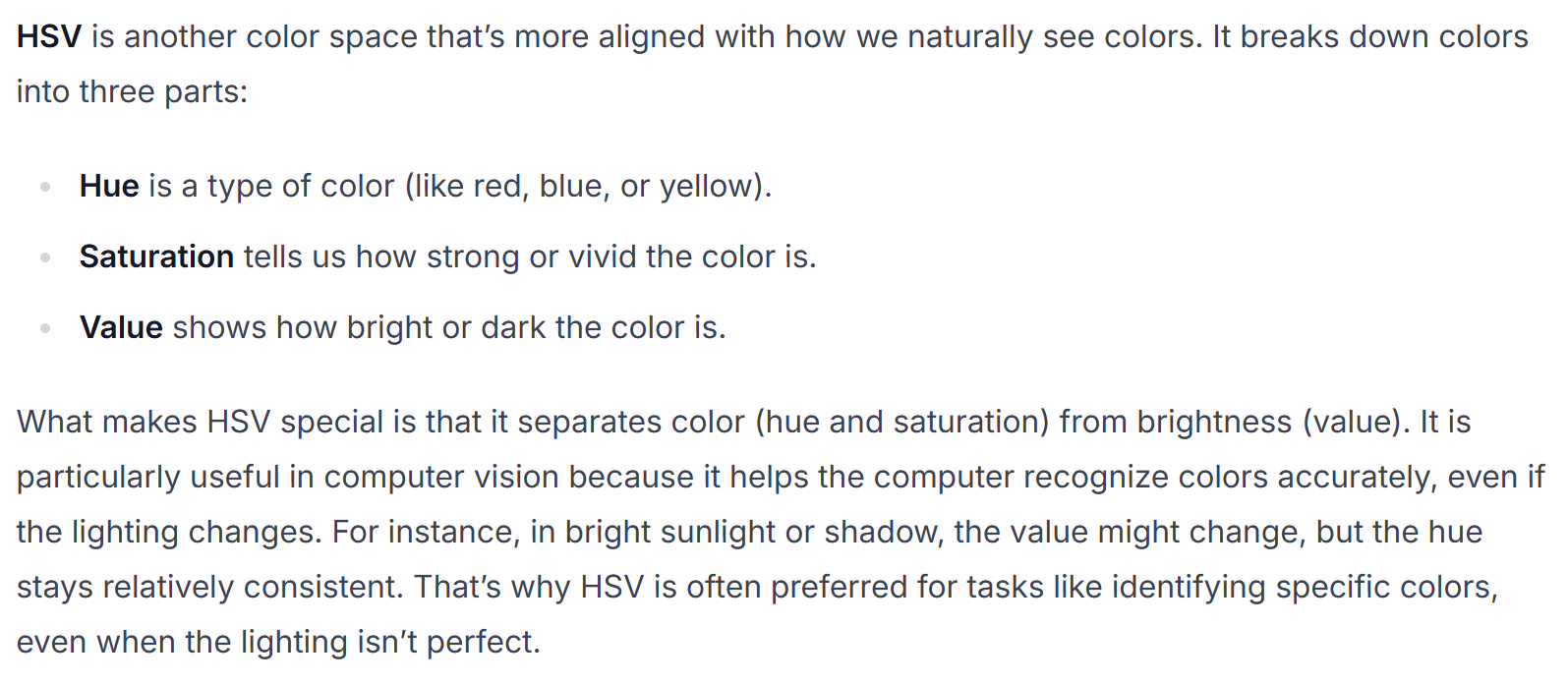
<https://www.youtube.com/watch?v=aFNDh5k3SjU&list=PLb49csYFtO2Hpfn8eLnaD9tJ0xYcMVcWe>

pentru formula de calculare a distantei de la camera la un obiect:

**dist = (width\*focal)/pixels**

width= dimensiunea cunoscuta a obiectului (in centimetrii)

focal= distanța focală a camerei



A screenshot of a computer program

Description automatically generated

!!!!!!!!!!! link pt documentatie la licenta (paper) <https://arxiv.org/pdf/1506.02640>

link excelent pentru camera <https://encord.com/blog/video-object-tracking-algorithms/>

link cu sport detection <https://encord.com/customers/sports-analytics-customer-story/>

link pentru detectia unui obiect dupa culoare <https://blog.roboflow.com/color-sensing-with-computer-vision/>

A close up of text

Description automatically generated

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Description automatically generated

Diferenta dintre depthAI si OpenCV:

depthAI- pentru procesarea imaginii direct pe dispozitivele sale, cum ar fi camerele OAK-D Lite.

OpenCV- este o librărie software pentru procesarea imaginilor și vizionare computerizată, manipularea imaginilor și analiza lor.

A screenshot of a computer program

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Video dupa care am ales culoarea de lowerLimit si upperLimit: <https://www.youtube.com/watch?v=cMJwqxskyek> => nu mai am fct de get\_limits() din camera.py

A screenshot of a computer program

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A screenshot of a computer program

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A screenshot of a computer

Description automatically generated

**cv2.drawContours(frame,[box], -1, (255,0,0) ,3)**  daca vreau sa se deseneze un dreptunghi ca si contur, iar box e definit cateva randuri mai sus

**cv2.drawContours(frame,[cnt], -1, (255,0,0) ,3)** daca vreau sa mi se deseneze exact forma ce o detecteaza, iar aici nu mai avem nevoie de box

avem urmatoarele linii care ar desena conturul ca fiind cerc, dar eroarea este foarte mare fata de celelalte cazuri

**for cnt in cont:**

**(x, y), radius = cv2.minEnclosingCircle(cnt)**

**cv2.circle(frame, (int(x), int(y)), int(radius), (0, 255, 0), 3)**

pentru a calcula corect distanta de la obiect la imagine trebuie facute urmatoarele calcule

O imagine care conține text, captură de ecran, linie, diagramă

Descriere generată automat

O imagine care conține text, captură de ecran, Font, linie

Descriere generată automat

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Description automatically generated

Focal = (1000 \* 7.5cm)/69 = (1000\*75 mm)/69 = 1086

A black and white logo

Description automatically generated

Dimensiunea reala a mingii este de 6.5 cm

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