[Autonom-Dji-Tello-Drone-With-OpenCv](#)

First Position:

Condition 1: �**▮▮▯** ▸ > 50

If battery bigger than 50,
Drone will move up 70 cm
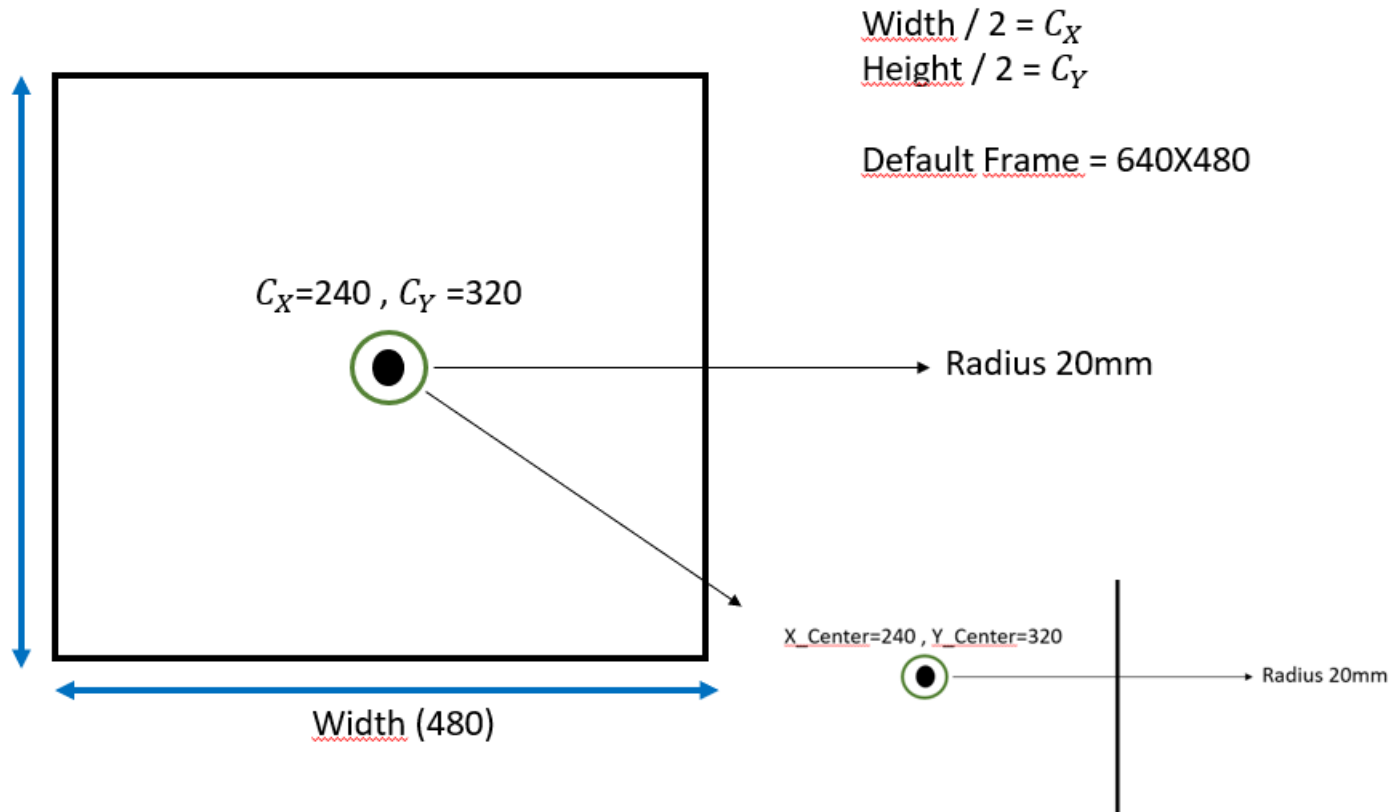to height of human face

Altitude: 70 cm

Condition 2:

▮▮▯ ▸ < 50

"please charge it"

If battery smaller than 50,
output will be up written.

Ground Level

Face Detection:

Width / 2 = C_X
Height / 2 = C_Y

Default Frame = 640X480

C_X=240 , C_Y =320

Radius 20mm

Width (480)

X_Center=240 , Y_Center=320

Radius 20mm

1. Build Frame with OpenCv

```
cv2.rectangle(img, (x, y), (x + w, y + h), (0, 255, 0),5)
```

2. Determine Middle point x and y

```
cv2.circle(img, (cX, cY), 4, (0, 0, 255), cv2.FILLED)
```

3. Build Circle on middle of the rectangle frame

Face Detection:

```python
def Face_Detection(img):
    faceCascade = cv2.CascadeClassifier("haarcascade_frontalface_default.xml")
    imgGray = cv2.cvtColor(img, cv2.COLOR_BGR2GRAY)
    Detect = faceCascade.detectMultiScale(imgGray,1.2, 8)
```

→ Define Haarcascade.xml

→ Convert from BGR to GRAY
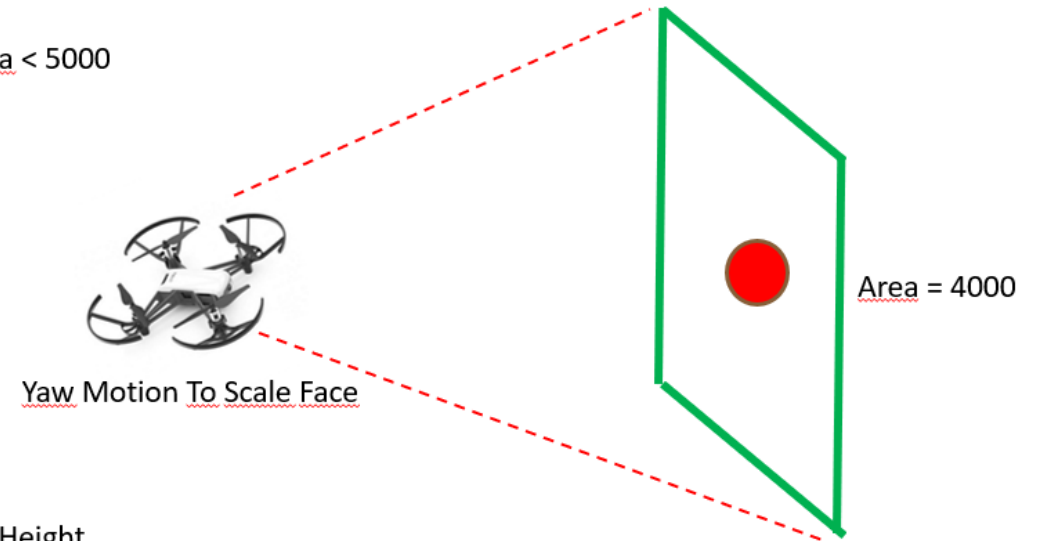
→ Finding Face on Gray image

Face Tracking:

```
if area > Forward_Backward_Range[0] and area < Forward_Backward_Range[1]:
    fb = 0  #Speed_x değerinde yaw haraketi yaparak yüzü arıyor.
```

Forward and Backward Range = [3000,5000]

1. Condition:

- If 3000 < area < 5000

Area = 4000

Yaw Motion To Scale Face

Area = Width * Height

```
drone.send_rc_control(0, fb, 0, speed_x)
```
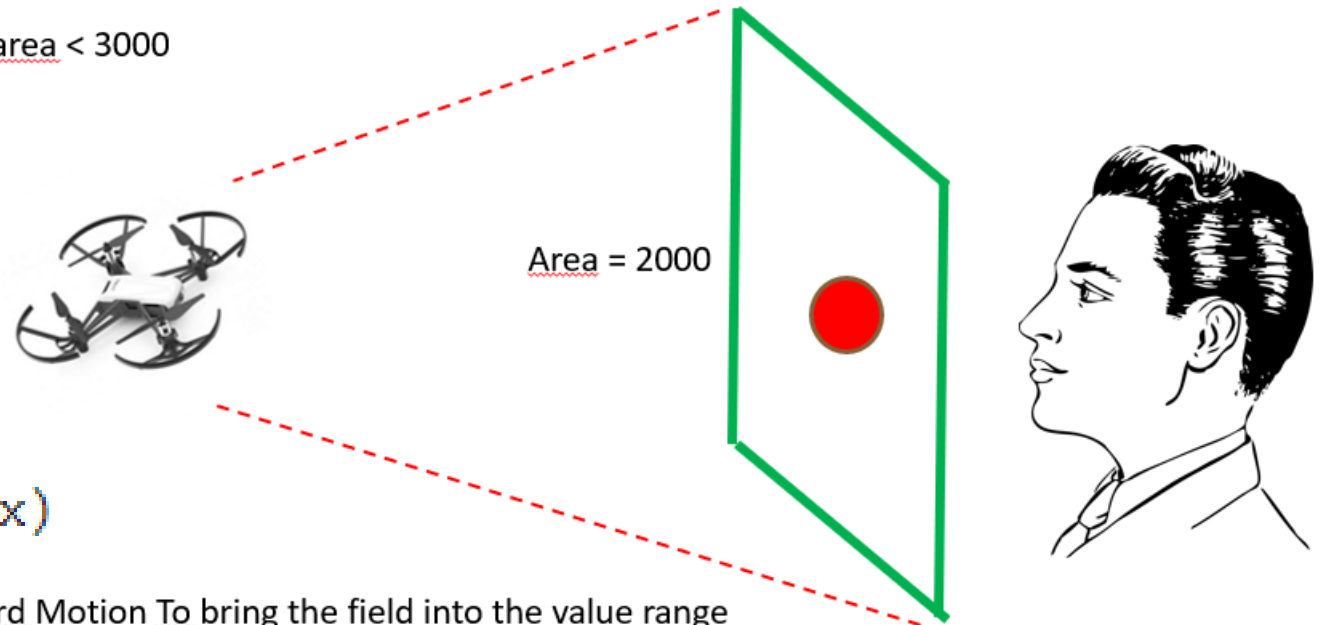
Face Tracking:

```python
elif area > Forward_Backward_Range[1]:
    fb = -25
    #Yüz yakınlaştıkça geri gidiyor
```

Forward and Backward Range = [3000,5000]

2. Condition

- If area < 3000

Area = 2000

```python
drone.send_rc_control(0, fb, 0, speed_x)
```

Backward Motion To bring the field into the value range
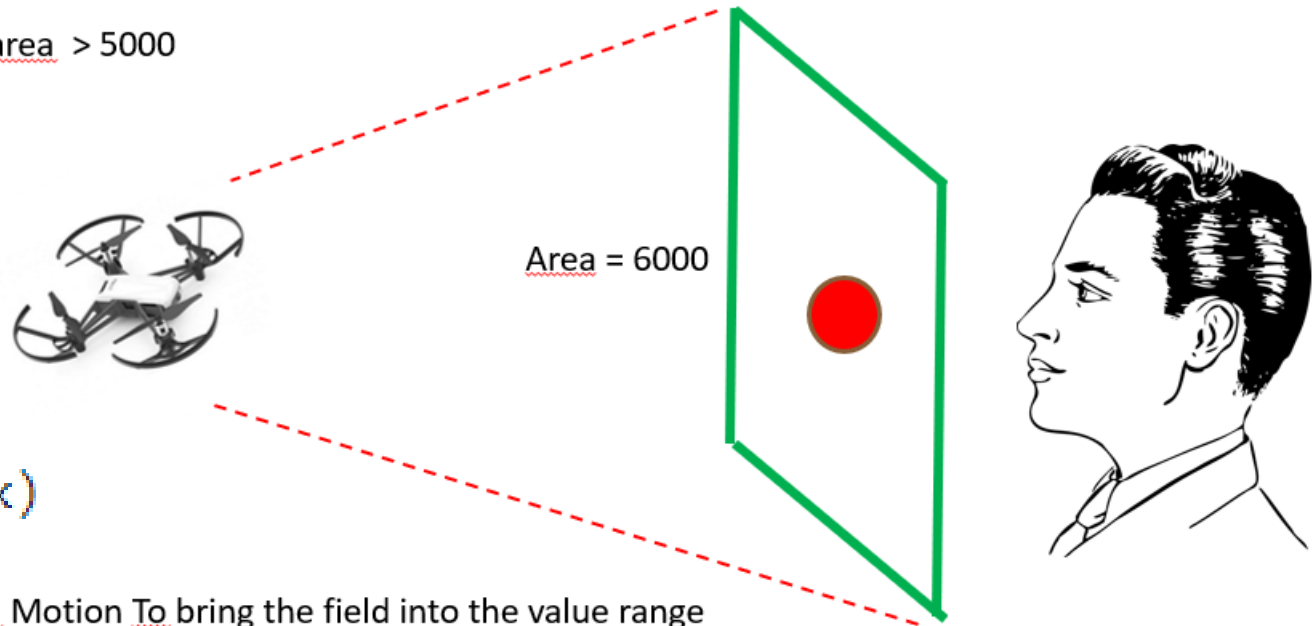
Face Tracking:

```python
elif area < Forward_Backward_Range[0] and area != 0:  # If the drone is too far get closer
    fb = 25
    # Yüz uzaklaştıkça ileri gidiyor
```

Forward and Backward Range = [3000,5000]

3. Condition

- If area > 5000

Area = 6000

```python
drone.send_rc_control(0, fb, 0, speed_x)
```

Forward Motion To bring the field into the value range

Face Tracking:

```python
elif area ==0:
    drone.rotate_clockwise(20)
    time.sleep(0.8)
```

Forward and Backward Range = [3000,5000]

4. Condition

- If area = 0

Rotate Motion To Scale face in empty frame