

Marker Detection

1. 카메라 내부 파라미터 설정
2. Aruco Marker Dictionary 가져오기

```
dictionary = cv2.aruco.Dictionary_get(cv2.aruco.DICT_6X6_25)
parameters = cv2.aruco.DetectorParameters_create()
```

3. Aruco Marker Detection 실행하여 corner들과 ID를 찾는다

```
frame = cv2.imread(image_path)
gray = cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY)
corners, ids, _ = cv2.aruco.detectMarkers(gray, dictionary)
```

4. Visualization 방법

```
if len(corners) > 0:
    ids = ids.flatten()

    for (markerCorners, markerID) in zip(corners, ids):
        corners = markerCorners.reshape((4, 2))
        (topLeft, topRight, bottomRight, bottomLeft) = corners

        topRight = (int(topRight[0]), int(topRight[1]))
        bottomRight = (int(bottomRight[0]), int(bottomRight[1]))
        bottomLeft = (int(bottomLeft[0]), int(bottomLeft[1]))
        topLeft = (int(topLeft[0]), int(topLeft[1]))

        cv2.line(frame, topLeft, topRight, (0, 255, 0), 2)
        cv2.line(frame, topRight, bottomRight, (0, 255, 0), 2)
        cv2.line(frame, bottomRight, bottomLeft, (0, 255, 0), 2)
        cv2.line(frame, bottomLeft, topLeft, (0, 255, 0), 2)

        #centerpoint of ArUco Marker
        cX = int((topLeft[0] + bottomRight[0]) / 2.0)
        cY = int((topLeft[1] + bottomRight[1]) / 2.0)
        cv2.circle(frame, (cX, cY), 4, (0, 0, 255), -1)

        #cv2.putText(image, text, org, font, fontScale, color(BGR)[], thickness[, lineType[, bottomLeftOrigin]])
        cv2.putText(frame, str(markerID), (topLeft[0], topLeft[1] - 15), cv2.FONT_HERSHEY_SIMPLEX, 2, (0, 0, 255), 3)
        print("[INFO] ArUco marker ID: {}".format(markerID))

    h, w = frame.shape[:2]
    frame = cv2.resize(frame, (int(w/3), int(h/3)), interpolation=cv2.INTER_AREA)
    cv2.imshow("Image", frame)
    cv2.waitKey(0)
```

5. 결과

최종 터미널에서 탐지된 ArUco marker의 ID들, Image에서 탐지된 ArUco는 빨강색 가장 자리를 가짐.