**Projet 10 - Résultat des recherches :**

**1-** **Algorithm ‘’UAV-Stereo-Vision’’(Unmanned Aerial Vehicle-Stereo-vision)**

<https://github.com/acfreeman2/UAV-Stereo-Vision>

This software was created for research into autonomous UAVs, to test real-time obstacle avoidance using disparity mapping onboard a Parrot AR.Drone 2.0.

it is an algorithm that is designed to drive the drone and move it using a keyboard to avoid obstacles

**2-** **Algorithm** “ **Obstacle-Detection-and-Path-Planning** “

https://github.com/Aniruddha-Tapas/Obstacle-Detection-and-Path-Planning

Path planning is a technique used to find the shortest path between a source and destination. Path planning ensures that navigation is done in least time and in most optimized way, saving energy and providing an optimized way of the doing task.

**Given:**

A set of test images, each containing

1. 10x10 grid, making 100 squares
2. Obstacles marked as black square
3. Objects defined by three features, viz. Shape, Size and Color

The squares are identified by the coordinate (x,y) where x is the column and y is the row to which the square belongs. Each square can be empty or have an Obstacle or have an Object.

**The program returns 2 major findings:**

*1.* ***The coordinates of occupied grid****:*

The code returns a python list having ‘n’ python tuples, where ‘n’ denotes number of occupied grid in test image. Grid is to be considered occupied if either grid has an Obstacle or an Object. Each tuple has two elements, first element is the x-coordinate of an Obstacle/Object and second element is the y-coordinate of the Obstacle.

*2.* ***The minimum path****:*

For each object in the test images, a matching object which is nearest to it is found using compare\_ssim function from scikit-image. Object is said to be nearest to another Object, if length of path traversed between two objects is smallest. Traversal is done by moving either horizontally or vertically. The length of the path is determined by the number of moves made during traversal. [A\* search](https://en.wikipedia.org/wiki/A*_search_algorithm) is used to find this shortest path.

The code return a python dictionary. Format for creating dictionary is as follows:

* Key for dictionary is a tuple - (x,y) coordinate of an Object
* first element of dictionary is a tuple - (x,y) coordinate of an object nearest to it
* second element is a list of tuples having (x,y) coordinate of all grids traversed i.e all route path
* third element of dictionary should be number of moves taken for traversal

**3-** **Algorithm ‘’Head Counter’’ :**

<https://github.com/abhilashdesai123/HAAR-head-counter>

Crowd counting and density estimation is still one of the important task in video surveillance. Usually a regression based method is used to estimate the number of people from a sequence of images. In this paper we investigate to estimate the count of people in a crowded scene. We detect the head region since this is the most visible part of the body in a crowded scene. The head detector is based on state-of-art cascade of boosted integral features. To prune the search region we propose a novel interest point detector based on gradient orientation feature to locate regions similar to the top of head region from gray level images. Two different background subtraction methods are evaluated to further reduce the search region

**4-** **Recognize the attire and posture of a suicide bomber : Algorithm ‘’ Human detection ‘’**

<https://github.com/sushilmdpatil/Obstacle-Detection>

A suicide bomber might exhibit signs of suspects :

· A – Alone and nervous. Report someone who is alone and seems nervous, sweating, eyes darting around, muttering.

· L – Loose and bulky clothing not compatible with weather conditions. If you see someone strangely overdressed, or who looks like they have something hidden under their clothes

· E – Exposed wires. Wires sticking out of clothing could indicate a bomb.

· R – Rigid mid-section. Wearing an explosives belt or harness makes some terrorists sit very upright.

· T – Tightened hands. Someone with tightened hands may be holding a detonation device in place.

==> which leads us to take an interest in the bodies of people and their movements

Some Technical methods

1- For dectection , we use