

KPIT

Implementation of YUV422 to Y Image

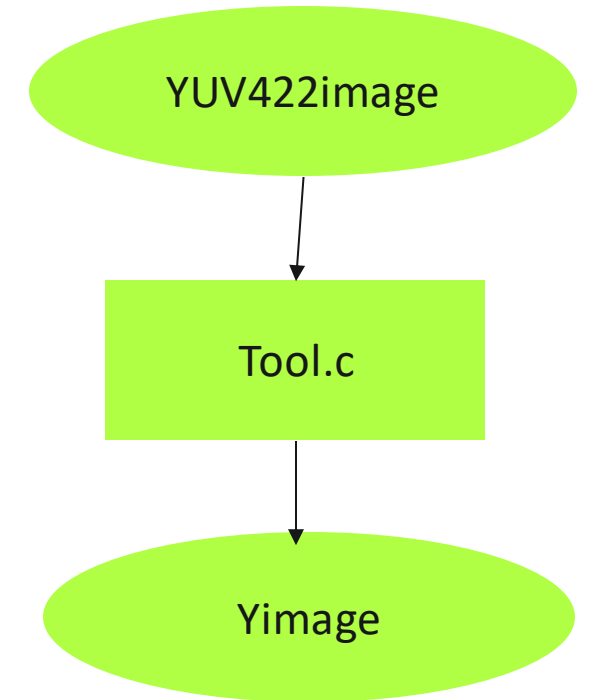


Agenda

- Planning and Requirement Analysis
- Defining and Designing Product Architecture
- Implementation
- Testing
- Issues Faced

Planning and Requirement Analysis

- To implement a tool that converts YUV422 image to Y image.
 - To Extract Data Information from Input i.e. YUV422
 - To process the input data
 - To generate Y image



Defining and Designing Product Architecture

- Provided Image is “YUY2” type of yuv422.
- Here as we know **Raw image** is just a binary file storing the image information in an **Array**.

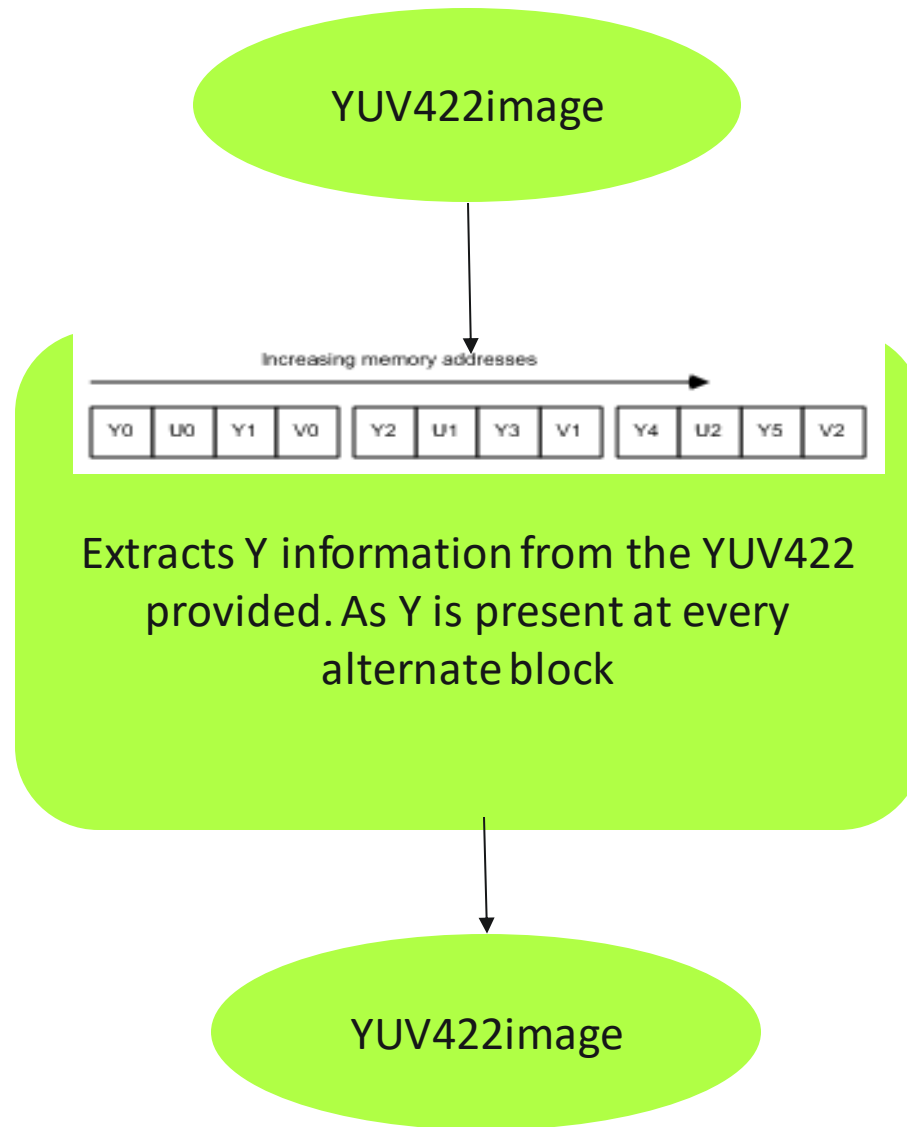


Here, I have just extracted the alternate data from input image file starting from index 0 and stored the information in new file(output).

- Thus new file only contains the Y0,Y1,Y2.....etc.

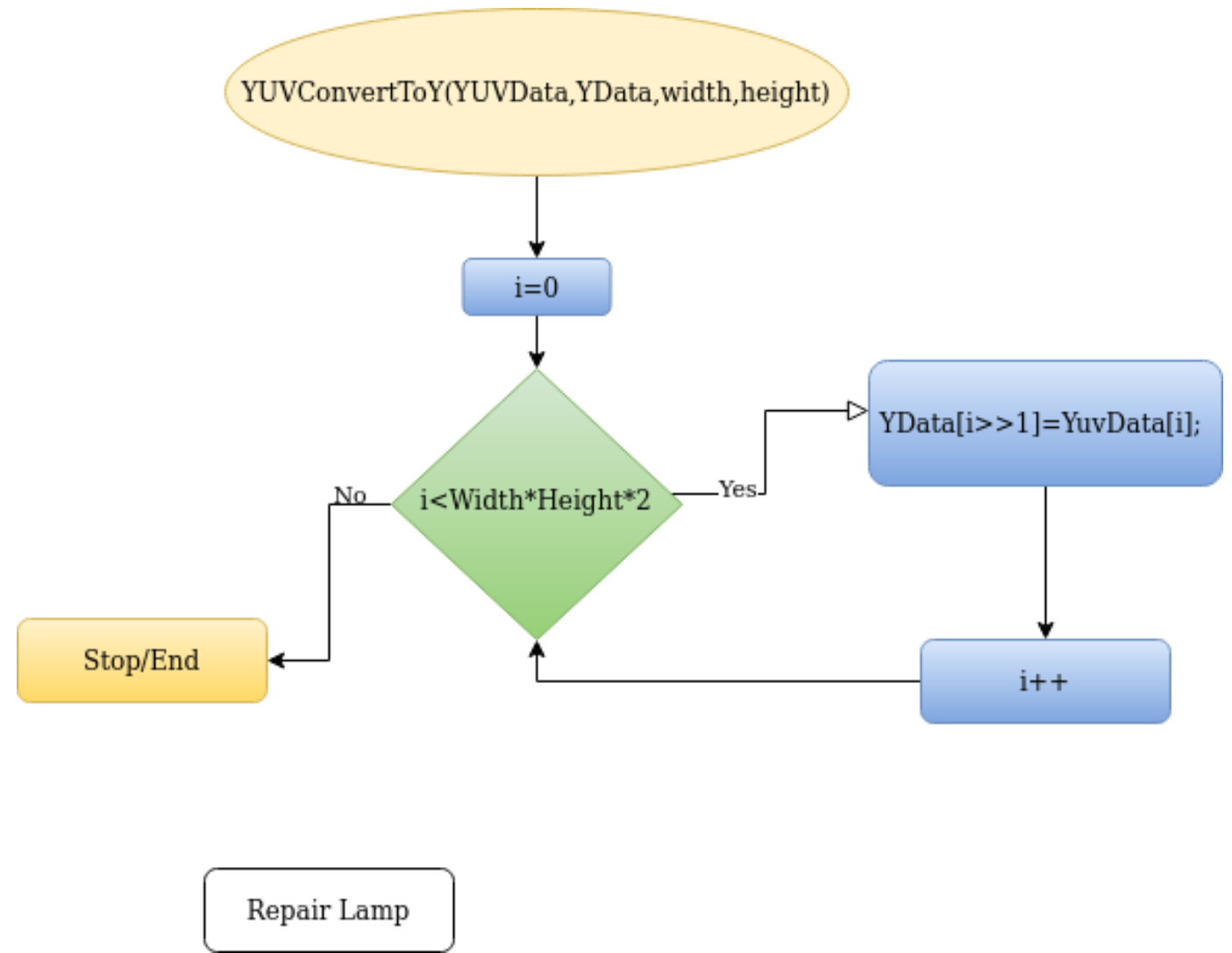
- Input Image Specification:
 - Image format : YUV(4:2:2)
 - YUV422 type : YUY2
 - Width : 1280
 - Height : 960
 - No of pixel : 1280*960
 - One pixel info : 2 Byte
 - Size of file : 1280*960*2
 - **Luma (Y) Data : 1280*960**
 - **Chroma(U-V) Data : 1280*960**
- Y is present at every **alternate** place in array
- Our output only include **Luma Data** whose size is equal to **(1280*960)Bytes**.

- Basic working of Tool:



FlowChart

4-Jun-20



Implementation

```
/**Actual processing**/  
/*  
Function: YuvConverterToY  
        Used for converting YUV image to Y  
  
YuvData:pointer to array containing YUV422 data  
YData:  pointer to array in which Y data is to be stored  
Width:  width of image  
Height: height of image  
  
Returns: nothing  
  
*/  
void YuvConvertToY(uint8_t YuvData[],uint8_t YData[], int width, int height){  
    int i=0;  
    for(i=0;i<(width*height*2);i=i+2){  
        YData[i>>1]=YuvData[i];    /*Y data is stored in every alternate block of array of YUV422*/  
    }  
}
```


Testing

- Tested with YuvView with Y setting's only and It works as expected
- checked Pixel's details and it only contains Y details

Issues Faced

- On my initial Implementation I have masked U-V in the same Image as $U=128$ and $V=128$, But later I realized that I have to make only Y image with no U-V's in it.
- Solved: Then I took new file and filled that file with only Y data which perfectly converted YUV422 to Y image



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Reimagining Mobility *with YOU*

Thank you