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MINI PROJECT:

TO ROTATE AN IMAGE BY A GIVEN ANGLE USING OPEN CV IN C++

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STEPS FOR INSTALLATION OF VISUAL STUDIO 2019 AND OPEN CV

Step 1: Install Visual Studio 2019

Download the [Visual Studio Community](https://www.visualstudio.com/vs/community/), which is a free fully featured IDE. A network installer of only a couple of megabytes can be downloaded. Running the installer will download typically 2-3 GB of files; the installation will be self explanatory. Just click ‘Next’ and ‘Next’ with express settings.

Step 2: Install OpenCV

Download latest OpenCV package for Windows from [opencv official page](https://opencv.org/releases.html). It will be an executable file anywhere between 100 to 200 MB. Don’t worry, it’s just an extracter. I would suggest you to extract OpenCV package in your root directory such as C: drive.

Step 3: Include OpenCV to system path

Go to Advanced System Settings > Environment Variables >System Variables > Path.

Click on ‘Edit’. Now, click ‘New’ to add new environment variable.

Copy and paste the path of *bin*folder inside OpenCV package. The path will look similar to *C:\opencv\build\x64\vc14\bin.*

Press OK and exit the environment variable dialog by clicking OK again.

Step 4: Create a new empty console application

Open up Visual Studio. Create a new project as a Win32 Console application using Visual C++. Make the *Empty* project and *Finish.*

Add a new .cpp file inside the *Source Files.*This will open up the newly created *cpp*file in the editor.

Step 5: Include OpenCV in Visual Studio

Till now, the opencv c++ functions & variables are not identifiable by visual studio. This is due to the fact that we haven’t linked opencv with visual studio.

Before proceeding, make sure solution platform has been chosen correctly. I am using x64 version hence, I toggled the Debug environment to *x64.*

Inside**Properties** of the project,

then C/C++ > General. Copy the path to *include*folder of opencv and paste it inside *Additional Include Directories.*The path will look similar to C:\opencv\build\include. Then, click Apply.

Go to linker > General. Copy the path to folder containing opencv  *lib*files and paste it inside *Additional Library Directories.*The path will look similar to C:\opencv\build\x64\vc14\lib. Then, click Apply.

Go to Input. Edit Additional Dependencies and paste the .*lib*file’s name. Choose the .*lib*file according to your configuration. For debug mode, the file ends with ‘d’, e. g., *opencv\_world341d.lib.*. Then, click Apply.

Exit the **Properties**by clicking OK.

*Note: make sure you edit the properties, using Configuration and Platform same as in which the source file is saved.*

Step 6: Test the code

Build the code by clicking *Build Solution*or just pressing Ctrl+Shift+B on keyboard. This should end up with output “Build Succeeded”.

Now the environment to run the code using open cv in c++ has been created.

Now run the code to rotate the image.