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| **Date:** | **29 MAY 2020** | **Name:** | **MANAVI** |
| **Course:** | **logic design** | **USN:** | **4AL18EC031** |
| **Topic:** | **Day 3:application of programmable logic controllers** | **Semester & Section:** | **4TH SEM**  **& A SEC** |
| **Github Repository:** | **Manavi-test** |  |  |

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| **FORENOON SESSION DETAILS** |
| **Image of session** |
| **Report – Report can be typed or hand written for up to two pages.**  **application of programmable logic controllers:-**   * PLC stands for “Programmable Logic Controller”. A PLC is a computer specially designed to operate reliably under harsh industrial environments – such as extreme temperatures, wet, dry, and/or dusty conditions. It is used to automate industrial processes such as a manufacturing plant’s assembly line, an ore processing plant, or a wastewater treatment plant. * PLCs share many features of the personal computer you have at home. They both have a power supply, a CPU (Central Processing Unit), inputs and outputs (I/O), memory, and operating software (although it’s a different operating software). The biggest differences are that a PLC can perform discrete and continuous functions that a PC cannot do, and a PLC is much better suited to rough industrial environments. A PLC can be thought of as a ‘ruggedized’ digital computer that manages the electromechanical processes of an industrial environment. * PLCs play a crucial role in the field of automation, using forming part of a larger SCADA system. A PLC can be programmed according to the operational requirement of the process. In the manufacturing industry, there will be a need for reprogramming due to the change in the nature of production. To overcome this difficulty, PLC-based [control systems](https://www.electrical4u.com/control-system-closed-loop-open-loop-control-system/) were introduced. We’ll first discuss PLC basics before looking at various applications of PLCs. * PLCs were invented by Dick Morley in 1964. Since then PLC has revolutionized the industrial and manufacturing sectors. There is a wide range of PLC functions like timing, counting, calculating, comparing, and processing various analog signals. * The main advantage of PLC over a “hard-wired” control system is that you can go back and change a PLC after you’ve programmed it, at little cost (just the cost of the programmer’s time). In a hard-wired control system, you’re essentially having to rip out wires and start from scratch (which is more expensive and takes longer). Let’s look at an example to better understand this advantage. * onds. With this hard-wired setup – we’re stuck. The only way to achieve this is to completely rewire our circuit to add a timing relay. That’s a lot of hassle for a minor change.  |  |  |  |  | | --- | --- | --- | --- | | **DATE:** | **29 MAY 2020** | **NAME:** | **MANAVI** | | **COURSE:** | **PYTHON** | **USN:** | **4AL18EC031** | | **TOPIC:** | **DAY 11:python for image and video processing with openCV** | **SEMESTER & SECTION:** | **4TH SEM & A SEC** | |

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| AFTERNOON SESSION DETAILS | | | |
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| **python for image and video processing with openCV:-**   * It is important to know what exactly image processing is and what is its role in the bigger picture before diving into its how's. Image Processing is most commonly termed as 'Digital Image Processing' and the domain in which it is frequently used is 'Computer Vision'. * The data that we collect or generate is mostly raw data, i.e. it is not fit to be used in applications directly due to a number of possible reasons. Therefore, we need to analyze it first, perform the necessary pre-processing, and then use it. * For instance, let's assume that we were trying to build a cat classifier. Our program would take an image as input and then tell us whether the image contains a cat or not. * The first step for building this classifier would be to collect hundreds of cat pictures. * One common issue is that all the pictures we have scraped would not be of the same size/dimensions, so before feeding them to the model for training, we would need to resize/pre-process them all to a standard size. * This is just one of many reasons why image processing is essential to any computer vision application. * Before going any further, let's discuss what you need to know in order to follow this tutorial with ease. * Firstly, you should have some basic programming knowledge in any language. * Secondly, you should know what machine learning is and the basics of how it works, as we will be using some machine learning algorithms for image processing in this article. | | | |