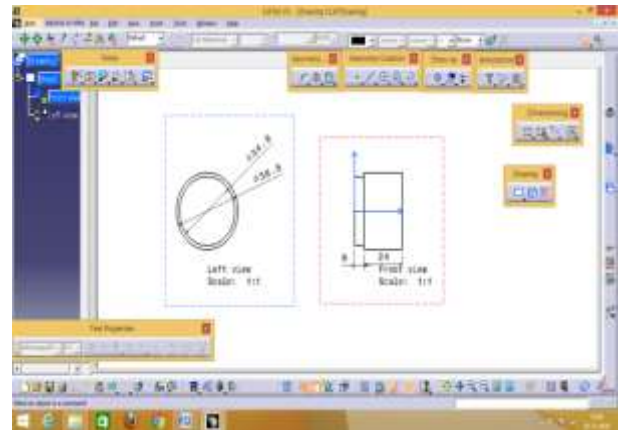


Multi Tasking Software for Manufacturing Industry

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Abstract:- The Information of Technology helps to develop or playing a vital role in the Era of manufacturing from the Stone Age to the 3D printers. The Technologies are much advanced than the previous generation of manufacturing. The Traditional manufacturing culture are getting Digitalized, such as by Automation and advanced robotics and Computerized technologies that are [CAD, CAM and CAE]. But still our country INDIA is behind the countries like- China, USA, Japan, Germany and South Korea also. So we need to develop our technologies in terms of manufacturing.



Key Words : CAD, CAM, CAE and Automation.

1. INTRODUCTION

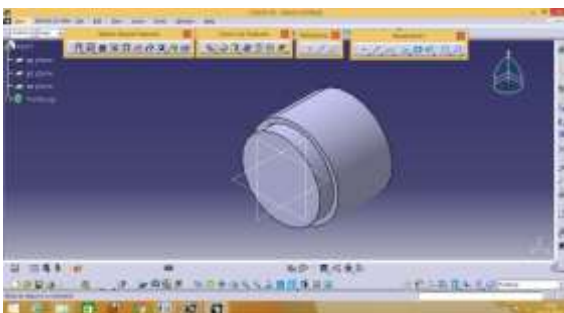
The information technology changes the way of traditional manufacturing processes and move the country towards digital manufacturing world. Nowadays the CAD, CAM, CAE and Automations like terms are being used in the manufacturing industries in the World. Before we move to the topic, first we should know what is CAD, CAM, CAE and Automation.

1.1 CAD:

CAD is stands for Computer Aided Designing. It means we can design a object or giving a Draft layout and solid models by the help of computer which is going to be manufacture. There are some CAD softwares are given below

- AutoCad
- C.A.T.I.A
- Creo
- Solid works

By the help of CAD softwares we can do solid models and can assembly of mating parts.



By the help of CAD we can do rendering also.

1.2 CAM:

CAM is stands for Computer Aided Manufacturing. It means we can do manufacturing by the help of Computer. There are such kind of machines like CNC, DNC, 3D printers like machines which are widely used in manufacturing industries because of those are more high accuracy, less errors, high precision and much efficient than Humans and also saves our time.



[Material removal process]

Some of CAM softwares are given bellow

- Mastercam
- Dellcam
- Siemens NX
- Tebis



[Material addition process]

1.3 CAE:

CAE is stands for computer aided engineering. It means we can analysis the stress, strain, various forces acting on a body, stress strain deformation of the object so that we may ensure that the product which is going to be manufacture that will be the reliable product we ever made.



Some of CAE softwars are given bellow

- Hypermesh
- Ansys
- Ansys fluent[Computational Fluid Dynamics]
- ANSA

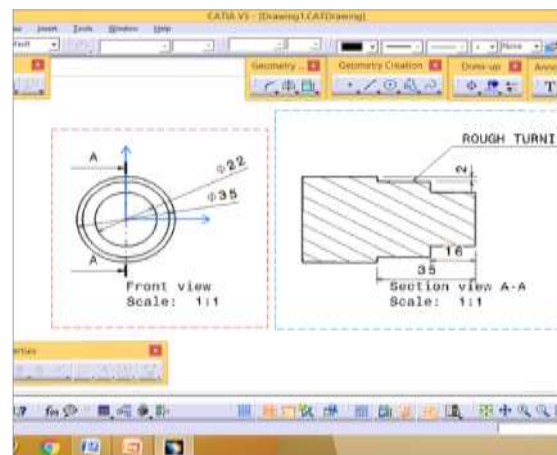
2. EXPERIMENT :

We know the Information technology makes our manufacturing a perfect, efficient and time saver process than the traditional manufacturing process. The automation or the replacing of robots in placing human workers are being done, so that the manufacturing process will be much faster because of robots are faster, smarter and less skill error than the humans. In terms of quality control the measuring and marking instruments such as digital callipers, height gauges, micro meters are getting digitalized so that the readings are getting more accurate list count can be more optimize. No doubt those are the best manufacturing processes, but even after that our country is still behind the countries like China, USA, Japan which shows that their I.T. Skills are much updated than ours. So we need to develop our I.T. skills. But the question is how can we improve our

I.T. as comparing to other countries. Yes there is a hope, by combining those way of manufacturing in a single way,

That is combining CAD, CAM and CAE in one software, so that time consumed will be optimized and can bring huge changes in terms of manufacturing. And that software should generate the programs for all the controllers like (FANUC, SEIMENS, HIDDENHEIN, MITSUBISHI etc.)and 3D printing programs too. Though there are some software which are combination of CAD-CAM, CAM-CAE, CAE-CAD OR may be the CAD-CAM-CAE as well but this software should be the advanced one.

FOR EXAMPLE



2.1Program of CNC

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O0001(ROUGH TURNING)
T0000
G28 X0;
G28 Z0;
T0101;
G92 S1000 M03;
G96 S80;
G00 Z2.0;
G00 X37.0;
M08;
G71 U0.2 R0.1;
G71 P10 Q20 F0.2;
N10 G01 X22.0;
G01 Z-16.0;
G01 X31.0;
G01 Z-35.0;
N20 G01 X37.0;
G00 Z2.0;
M05 M09;
G97;
T0000;
G28 X0;
G28 Z0;
M30;
    
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3. RESULT AND CONCLUSION:

If the software concept will be ready, it will be the very user friendly application. It will reduce the time consumed, so that the production rate will be increased. It will reduce the labour cost and the maintenance cost. It will be the best multitasking application which can work on the different kind of workbenches.

REFERENCE:

Advanced CATIA-V5r20, AutoCAD 017, CNC programming of (mikelynch), CREO parametric 016, YouTube, GOOGLE.