Cnc milling machine programming g codes

The brief abstract about my project- a CNC machine or computer numeric machine is designed to control various machinery tasks using a computer program. In this project, the machine is created in such a way that the code created for it can be used to pull the result of that code. This concept is used to create logos, drawings and other artwork in real short time. Portraits and sketches can be created like as an artist's masterpiece. All we have to do is make a code of that picture. Yes! So what we're doing in this project is that first of all, we need a picture in PNG. Or JPEG. The form and outline of that picture are converted to G-code (this can be done with the help of the different apps providing for doing so). So G Code is a program that will be used to run the CNC machine to draw a picture of that code. We've already prepared some G-codes for our CNC machine, including tattoo outlines. We are using plain white sheets as screens where a pen inserted into a machine can draw. The movement of this pen is controlled by motors used for the X, Y and Z axis (where these axes are directed through G-code). We are using 8mm motor for X and Y axis and a servo motor for Z-axis.In this project, we need some basic devices like a laptop, cable and some software. This machine can drag any 2D figure by changing any 2D image or changing the file to G-code (geometric-code). G-code can be created using software because we need Inkscape to convert our figure to 2D G-code. You can also use other software to create G-codes such as Mak3Mill, CAmotics, etc. We also need G-code sender software, in this project, I am using processing-3 software to print G-code in the board, besides you can use another software like Google G-Sender. Arduino Nano =1 L293D(IC)=2 16 Pin IC Base=2 Servo Motor(SG90)=1 Stepper Motor=2 4 Pin Relimate Male/Female Connector=2 PCB(3*5)=1 Wooden Board=1 Wooden Board=2 2 Header Connector = 2 Solder Wire = 1 Solder Flux = 1 Small Wire Roll = 1 Bolt Packet 1.5 inch = 1 USB Connector = 1 USB to USB Cable = 1 USB Type B USB Cable = 1th will connect all connectors on PCB. We added all connectors to the PC. We connect IC1's D2, D3, D4, D5 pins to ic1 pin number 2,7,10,15 and connect Arduino's D8, D9, D10, D11 pins to pin 2,7,10,15 of IC2. Connect pin numbers 1, 8, 9, both to 16+ 5V DC of IC (this means connect the positive PIN of the USB. Connect pin numbers 4, 5, 12, 13 of both IC with the ground pin of IC and Arduino. Connect the D6 pin of the arduino to the servo signal pin. Connect the servo +ve and -ve wire to usb + way and -ve pin. Stepper motor solder with connector wire. Connect (IC1) PIN No. 3 and 6 Stepper B&D and PIN Check C & A from Stepper D&B and PIN Nos 11 and 14 to A&C Connect (IC2) PIN Nos 3 and 14 From 11 and 14 All wiring is correct and test the

circuit. Download the attached Arduino sketch. Connect Arduino from PC with USB cable. Upload sketch. Now open the processing software and compile gcode_executer_code. Now add the G-code file to the software and then then This, your machine is running.software downloading links.txt today we are very used to running a rich variety of operating systems and programs on our mobile devices, from office on Windows laptops to a game on our Android smartphone, we are accustomed to running any program that we have installed (stored) on one device. But things weren't like that. Well, I'm not talking about 5 years ago, but more like 50 or 60 years ago. You see that previously computers didn't run programs stored on some kind of media, they only ran the program that the physical circuit board allowed them to run. The idea of loading and running a stored program did not exist. That was until two very clever people started to think about building a universal computer that could theoretically run any program we care to create. The first of these two guys from Alan Turing. He played a major role in cracking the German puzzle code during World War II, but he's also known for lots of other things including his work on AI (i.e. the Turing Test) and for his idea of the Turing Machine (and the Universal Turing Machine). In short Turing described a machine that can read or write symbols from tape and then move to another part of the tape in the direction of those symbols and read or write more symbols. The idea was enhanced by John von Neumann in a design known as von Neumann architecture, instead of tape it had random access memory (RAM) and a CPU that could execute ram instructions and turn data into a single RAM. Von Neumann architecture is the basic premise of almost all modern computers. But what does it all have to do with assembly language and machine code? In short the computer at the heart of your smartphone is a Von Neumann machine that runs programs (apps) stored in phones (flash memory) and those programs can be changed, updated and removed, just by altering the stored in Flash. Each app is composed of instructions, stored instructions that tell the processor what to do. Your smartphone probably has a processor based on ARM architecture and CPU cores designed by arm (e.g. Cortex-A72) or one of ARM's partners like Samsung or Qualcomm. These processors all understand the same instruction code. Instructions are basically numbers. The width of those numbers (such as 8-bit, 16-bit, etc.) depends on the architecture. ARM instructions can be 16-bit, 32-bits wide or 64-bit wide, depending on which mode is being used. When the CPU sees a number, for example 0x0120 or 288, it knows that it means put 1 in register 0. It's the same on the Cortex-A72, on Qualcoma Kryo, on Apple A9 processors, and so on. It's this raw number format that's machine code. On a modern processor it is very difficult (and inefficient) to write machine code by hand, typing in raw numbers. So there is a slightly higher level of language called assembly language which is the text representation of machine code. case-ending showing possession or relation Called an assembler is then used to convert machine code from assembly language. Assembly linguistic first I mentioned that 0x0120 means register put 1 in 0. A register is a small pot which can hold a number, there are only a few (at most 64), so they can't replace the main memory, but when doing a particular job (say, looping around when working on a string) they are great as a fast temporary holder for data. In assembly language put 1 in register 0 is written like this: movs r0, #1. So when the assembler sees a movs operation it can generate the correct machine code based on the register used etc. So here's a piece of assembly language:// I = 15; mov r3, #15 str r3, [r11, #-8] //j = 25; mov r3, #25 str r3, [r11, #-12] //i = i + j; starting lines with ldr r2, [r11, #-8] ldr r3, [r11, #-12] r3, r2, r3 str r3, [r11, #-8] In fact the comments contain C language equivalent to what the Assembly language is doing. As you can see this code sets a variable called I, which is stored up to 15 to 8 bytes on the stack. It then sets J, which is stored on the pile below 12 bytes, 25. Finally it says to I J (by loading in r2 and r3 in J) and then I store the results in (8 bytes below the pile). This means taking 8 lines of code to determine the value of two variables and then add them together. Imagine how much code you need to write a game like Clash Royale! That's where high-level langs like C, C++ and Java come in. The equivalent program C is just three lines long, saving enough! Also high-level languages let you use good variable names instead of storing things on the stack or in the main memory. A slightly more human readable form of machine code is called assembly language and a program is used to convert assembly notation into machine code. Usually apps for Android are written in Java. Java is compiled into Java byte-code which in turn is executed on a Java virtual machine. It works well for most apps, but if you need to squeeze that extra performance from your app you may want to write the code in C or directly in the assembly language. It is possible to write an app in C using the Android Native Development Kit (NDK). C is then compiled directly into machine code. Or you can also write assembly code using NDK if you want the final level of control! Nerds only need to be applied. Recapster-program computers can be known as von Neumann architecture machines. They run programs stored somewhere on the system and are flexible (universal) in the sense that it can run any calculatable algorithm. The actual raw instructions executing the CPU are called machine code. A slightly more human readable form of machine code is called assembly language and a program is used to convert assembly notation into machine code. High-level languages such as C or C++ are converted to machine code While common apps are written in Java on Android, it is possible to write C, C++ and assembly language programs using NDK. Any questions? question?

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