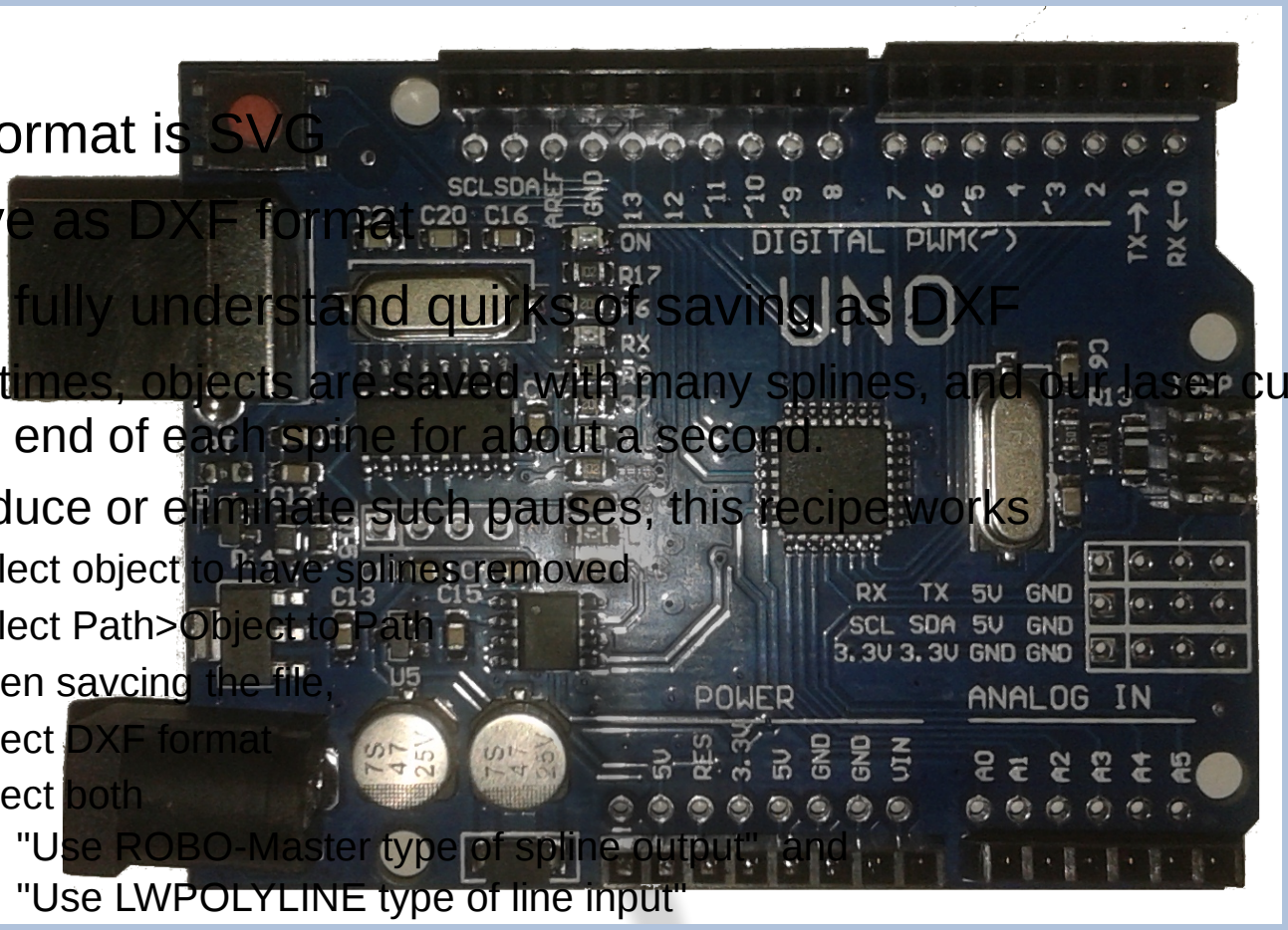
* generate a DXF file

- Inkscape
  - native format is SVG
  - can save as DXF format
  - I do not fully understand quirks of saving as DXF
    - sometimes, objects are saved with many splines, and our laser cutter pauses at the end of each spline for about a second.
    - To reduce or eliminate such pauses, this recipe works
      - Select object to have splines removed
      - Select Path>Object to Path
      - when savcing the file,
      - select DXF format
      - select both
        - "Use ROBO-Master type of spline output" and
        - "Use LWPOLYLINE type of line input"



alternative DXF creators -

- SolidWorks (not free, requires windows)
- Autodesk Inventor (we have it on the 3D printer computer, but cannot create files right now.)

create a GCode file (NC extension) using DXF file

- CamBam
  - Open DXF file
  - select objects that compose to your design
  - move to origin (0,0) if desired, using right Click, transform, move, select reference point, select goto point
  - click the "Engrave" button
  - select the "Machining" folder
  - set Post-Processor to be "Laser"
  - right click, generate g-code

TRICKS!

- Multiple Passes
  - If you click the Engrave button multiple times, multiple copies of the job are created
  - Multiple jobs can be combined into one GCode file by selecting them individually, or by selecting an "ancestor" part.
- Decent Feed Rate is 30 inches per minute.

Use GCode to operate laser cutter

- Mach3
  - Open Gcode file
  - with carriage above where you consider (0,0), press "Zero X" and "Zero Y"
  - test fire laser (I hope you are using test material!)
  - when ready, press Go

TRICKS!

- Re-scale
  - If the dimensions of your object are wrong, they can be scaled in Mach3
  - step 1
  - check to see that proportions are locked (if desired)
  - change parameters
  - press apply
- Potentiometer does work, and max on potentiometer is safe
- Multiple passes at lower power is a good strategy
- work surface should be 81 mm from top of carriage. We used to have a gauge. It is lost.
- Marks on work bed show X = 0 and Y = 0

How you can help

- Pay for use of laser, and be sure to let treasurer know what the money is for
- clean up
- make a gauge
- improve pictures for wiki page
- improve text of wiki page
- make samples of combinations of material, power, speed, repititions
- teach a class on how to do X with the laser cutter
  - How to cut stencils
  - How to mark leather
  - How to make fancy labels
  - How to cut out a parameterized box
  - How to cut out a parameterized gear