|  |  |
| --- | --- |
|  | Vidette Makes Pellet Printer  Vidette Makes is Valparaiso's maker group; We are a community of technical professionals, creatives, and enthusiasts working to build a shared workspace to enrich our city through meaningful educational and social projects.  Your senior design project can help improve education throughout our state. Welcome to the team! |

# Introduction

3D printing is great for prototyping, but plastic begins its life as pellets, not filament. Some very expensive 3D printers can use those pellets instead of filament, so the material cost is much lower, and recycled material can be used. Your mission is to develop instructions to modify an Ender-3 3D Printer print from raw plastic pellets. You’ll deliver a machine, as well as work instructions and a time study so others can replicate your work. Finally, we’d love for you to present your work at one of Vidette Makes’ community events.

# Project

* Purchase a [Creality Ender-3 3D Printer](https://store.creality.com/products/ender-3-3d-printer-4za7).
* Modify the printer to accept pellets instead of filament.
* Publish work instructions for the modification process so that hobbyists can replicate your work.
* Perform a time study on each step in the conversion process.
* Compare the performance of the modified printer to the original.
* Please make your device(s) fit in the trunk of a car.
* The modifications must be as easy to perform as possible.
  + Use “off the shelf” components whenever possible.
  + Use connectors, not solder. Hand soldering is the #1 cause of failure in electronics.
  + Use fasteners, not glue. Glues are difficult to control and messy.
  + Avoid melting/grinding/cutting to make things fit.
  + Avoid machining when possible. Drilling is ok.
  + Require the fewest number of tools possible (e.g., not 4 screwdrivers).
  + Any part requiring special skills (welding, machining, laser cutting) to construct or assemble should be quoted from three vendors and discussed with the customer.

# Tips & Tricks

* Start a git repository for the project immediately, and do all your work there.
* Examine high-end pellet printers for design elements you can copy.
* See if plastic manufacturers will give you samples of their products.
* Reach out to companies that make pellet printers.
* The more emails, the more likely you are to succeed.
* Let’s meet every two weeks.