The implementation of an optimize 3D printing path

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3D printing is an Additive Manufacturing (AM) process that generates several different two-dimensional paths. These paths are than laid on top of each other one at a time to create a three-dimensional object. This process allows us to quickly and cheaply model objects with a standard shape. However, when it comes to objects that do not have a standard shape, this process has the tendency to make those objects significantly weaker. This is because the current 3D printing applications do not take into consideration the loading scenarios of said object. Loading scenarios is the direction of the workload being applied to an object. This makes it much harder to prototype a product that revolves around its loading scenario and real-life application. To solve this problem Christopher M. Rogers created an algorithm that generates paths that account for loading conditions of the object. Christopher's algorithm successfully generated a G-code for a non-standard shape on the modeling software. G-code is the type of that is used to 3D print objects. However, his G-code had several bugs that caused errors when you try to print it. The purpose of the paper is to describe the bugs, flaws with the algorithm and how to solve these problems. With the new and improved G-code the idea of creating components that can be used in production applications is within grasp.