A computer numerical controlled (CNC) lathe is a machine that performs cutting operations on a generally cylindrical workpiece by contacting a single point cutting tool to the surface of the rotating workpiece. The CNC system employed in most lathes today enables a workpiece of the desired profile to be produced without having to be continuously supervised by an operator. The CNC lathe generally comprises a headstock assembly for holding and rotating the workpiece, a tailstock for holding the workpiece at its other end, a cutting tool for cutting on its surface while the it is being rotated.

The conventional CNC lathes are often bulky and are manufactured in a way that does not allow them to be dismantled, and are therefore difficult to be transported. For instance, the workpiece is in a locality that does not have a machine locally available to perform the machining operations. Therefore, there is a need for a CNC lathe, which can be easily assembled and dismantled, so that it can be conveniently transported, and at the same time there is no need for it to be connected to another structure.

The present study has come up with a medium duty CNC lathe machine, ergonomically designed for a classroom setting and small workshops. Unique features of the machine include an ergonomic design for easy accessibility and operation, a smart lubrication system, a Minimal Quantity Lubrication (MQL) option and an online monitoring of cutting processes via a built-in camera system.

The present invention focuses on supporting the needs of the research community by providing services for the design and fabrication of a customised apparatus, consultation, trading and training. It is also committed to the development of platform technologies for improved teaching of engineering design and manufacturing, particularly at technical schools and colleges. A comprehensive solution for the teaching of CAD/CAM and manufacturing is offered by the company such as Engineering Drawing e-learning software, CAD/CAM/CAE software training, CAD simulator and a range of educational CNC machine.

THE OPPORTUNITY

- Can be assembled and dismantled using simple tools
- Has a pair of walls for mounting the machining components
- Has a compact component arrangement that requires less space
- Has a cutting tool that can be moved longitudinally and crosswise while the spindle is stationary