PAPER BURNING PRINTER

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OVERVIEW

- Most conventional printers uses ink which is costly and needed refilling.
- A unique and cost effective solution is a printer that prints by burning the paper itself.
- The purpose of this project is to print images and photos in grayscale. The printer takes a photo or a given image, convert it to grayscale and burn it on to a paper.
- Using a graphite rod as the burning header, motors to drive the headers in x, y coordinates and Arduino board for control.

PROBLEM & SOLUTION

- **Problem**

  We do not have cost-effective printers, capable of printing real time images with very low cost.
- **Solution**
  - A printer which uses a burning rod to print an image instead of using propelling droplets of ink.
    - Use a carbon rod as the burner
    - Use stepper motors to control the x-y directional motions of the rod.

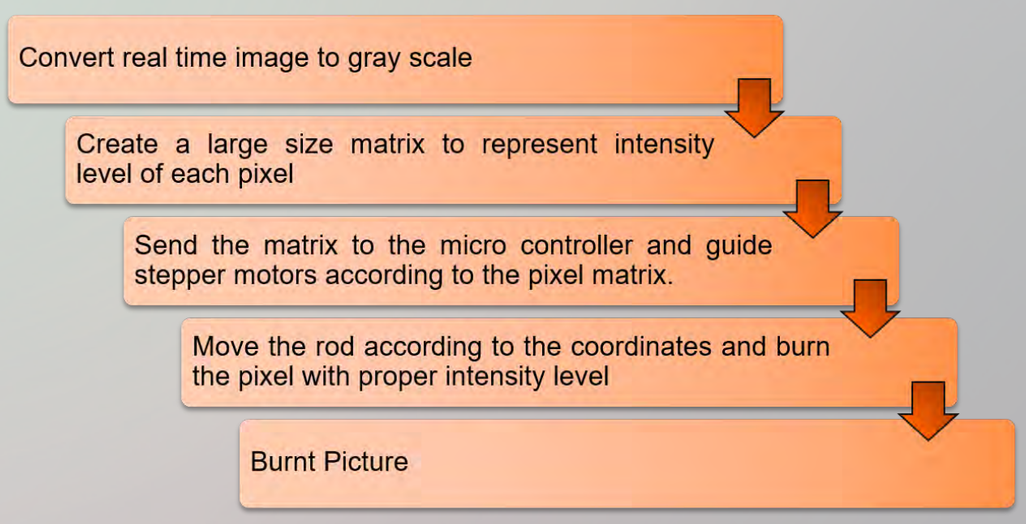
BACKGROUND INFORMATION

- Similar products:
- **Wood burning printer**
  - Uses a burning rod to print images on wood.
  - Need x -y-z directional motions.
- **CNC engraving machine**
  - Used to engrave materials using a rod.

IMPLEMENTATION

- Three main parts need to be considered:
- **Mechanical Design**
  - Paper holder is made of wood to reduce the weight and cost. This makes the device easily portable.
- **Electrical Design**
  - Carbon rod has to be heated up.
  - Stepper motor drivers have to control the x - y directional motions of the burning rod.
- **Software Design**
  - Need programs to,
    - Control the motion of each stepper motor.
    - Convert image to grayscale and produce a pixel matrix.

THE PROCESS



CONCLUSION AND FUTURE WORKS

- This product will help people to cost-effectively print real time images.
- This will give economic benefits to the users.
- For further developments, the printer's precision, accuracy and speed can be improved.
- Printer can be made to support more intensity levels in a picture.

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