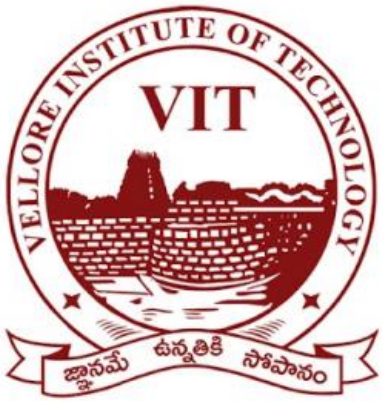

VIT-AP UNIVERSITY

ECS1001 - FINAL PROJECT REPORT

TITLE: BRAILLE PRINTER

PROFFESOR: Dr.Y Mohamed Sirajudeen Sir

MEMBERS OF YOUR PROJECT:

Garapati Devisree -21BCE7062

Bellamkonda Meghana - 21BCE7834

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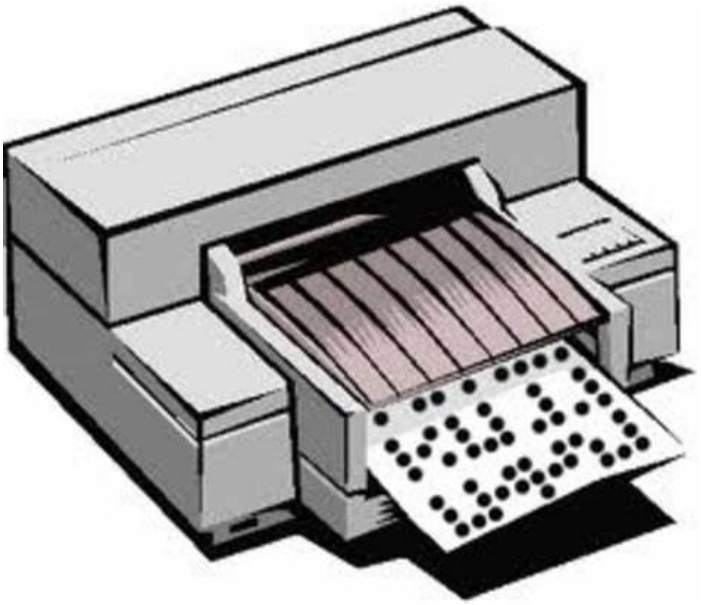
Dishita Yadav -21BCE8524

ABOUT THE PROJECT:

- A braille printer, is an electro-mechanical device for displaying braille characters, usually by means of round-tipped pins raised through holes in a flat surface. Braille is named after the inventor of it that is Frenchman Louis Braille, who lost his eyesight due to an accident in his childhood
- The dot positions are identified by numbers from one through six. 64 solutions are possible from using one or more dots. A single cell can be used to represent an alphabet letter, number, punctuation mark, or even an entire word.
- Electronic brailler converts braille input from a keyboard to a printer connected to it and sends it to a printer.



Problems Faced By Real World: [Defining Problem]

- The price of braille printers is directly proportional to their volume of production. A large-volume braille printer can cost between $10,000 and $80,000 which is very high.
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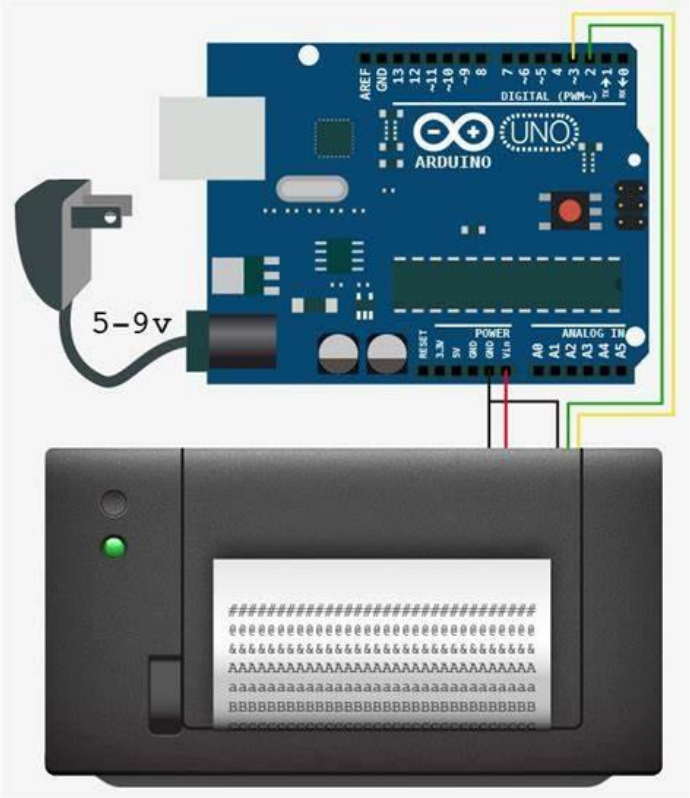
- A person need to learn braille language to speak with a deaf and dumb person
- Printers typically print on heavyweight paper and use up more pages for the same amount of information than pages printed on a regular printer.

Solution From Our Project:

- To Overcome such type of problems we created a braille printer with the help of arduino as main element using C language
- People can easily communicate with a dumb and deaf person without learning braille just by giving input in the code.
- Our project connect the world of coding with electronic devices

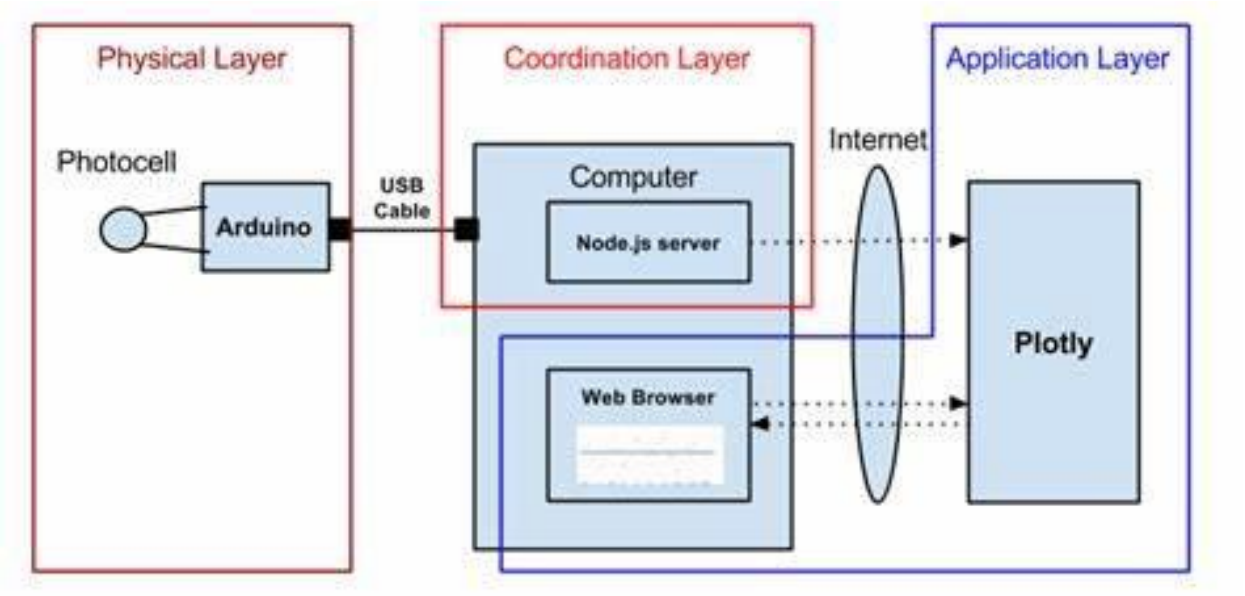


OBJECTIVE AND MOTIVATION:

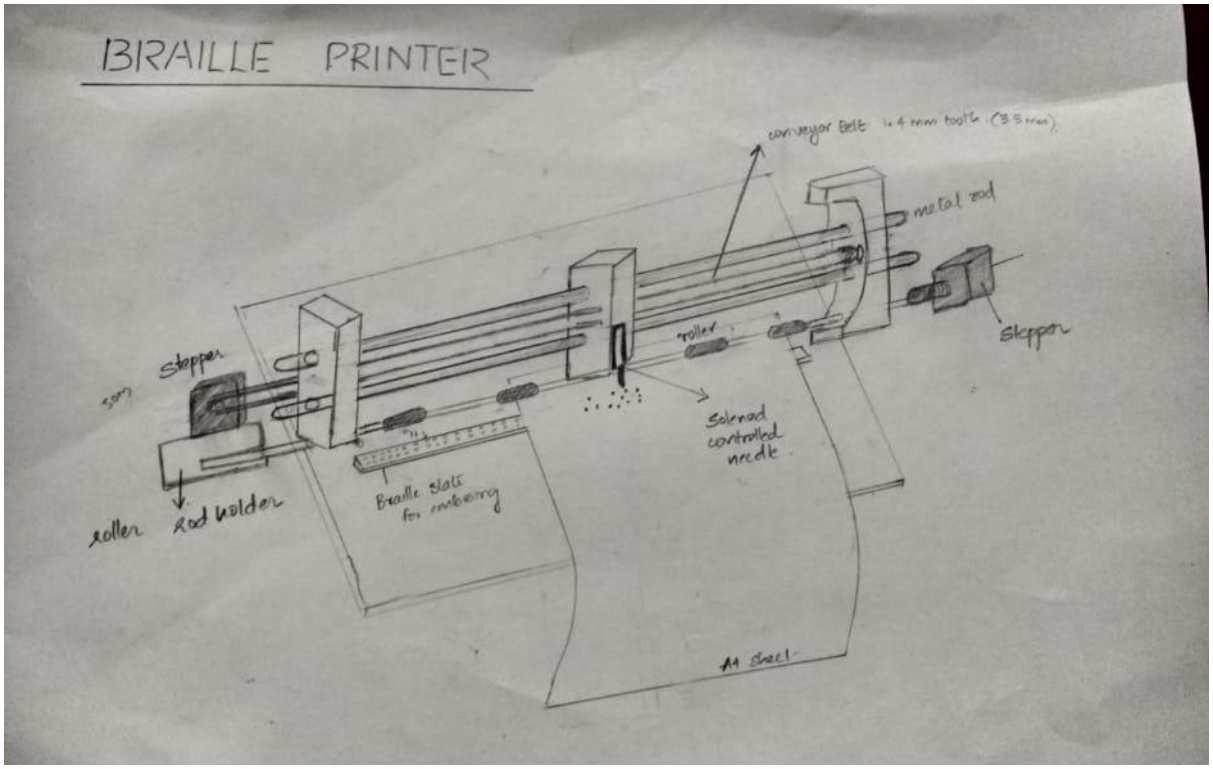
- The blinded and Deaf people are struggling a lot for speaking with people around them and making it difficult for them to live in this society.
- A normal person can type the content that he want to communicate with blind person in code and print it using the brallie printer
- The braille printer converts the text to brallie language and prints it on the paper,with the help of this the blind person can be educated
- We can provide the braille printer to physically handicapped[deaf and blind] at a cheapest cost using Arduino

MODEL OF THE SYSTEM:

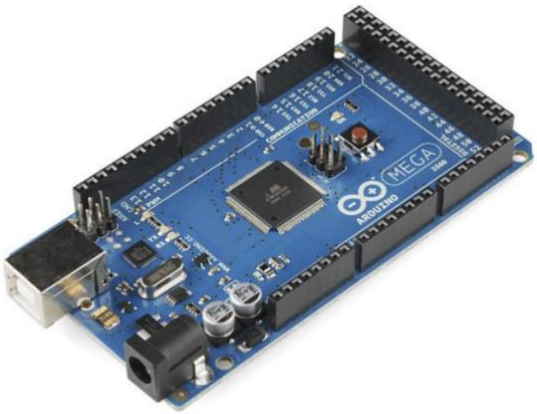
ARCHITECTURE:



3-D DIAGRAM:



MATERIALS REQUIRED:



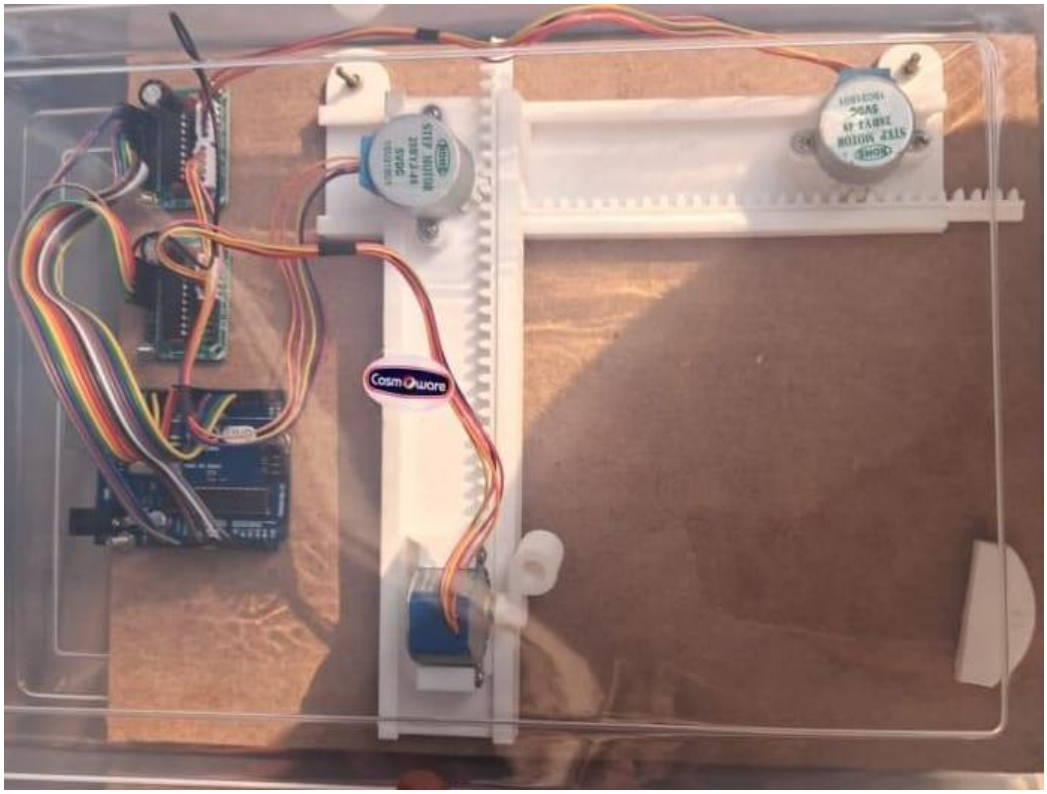
- ARDUINO
- Stepper motors - 3Nos
- GT2 belt with 1.4mm tooth

- Linear bearings -2 Nos
- Motorshaft-Belt Coupler - 1 Nos
- Pulley -1 Nos
- 8mm smooth rod - 2 Nos
- Paper feeder rod with the rubber bush

MACHINE ACTUATION: [METHADOLOGY]

- Choosing the microcontroller board [Arduino]
- Choosing the end effector to be attached to the printer head
- Controlling the stepper motors from the board to control x , y and z-axes in the machine
- Firmware to control the machine in real-time
- Controlling the end effector, which is the solenoid push pull
- Integrating the machine
- A GUI to take text input in English and a program to convert this into braille.
- A program to convert braille into gcode and send it to the machine, to move the solenoid push pull and feed the paper accordingly

PROTOTYPE OF YOUR PROJECT:



CODE:

https://github.com/carloscamposalcocer/OpenBraille

EVALUATION:

ECS Project Details

S.NO	SEMESTER	EC ID	PAPER TITLE	GUIDE NAME
1	FALL SEM (2022-23)	220353	Braille Printer	Prof.Y Mohamed Sirajudeen

ECS Review Marks

S.NO	REVIEW 1	REVIEW 2	REVIEW 3	PROJECT REPORT	INTERNAL EXPO
1	9	19	27		

FUTURE SCOPE:

We were able to make a braille printer in a span of two weeks. The commercial materials costs around $5000. Our project is a proof-of-concept that complex machines can be made in a easy way. Since we are open-sourcing our work, anyone can reproduce this or improve upon it. At present, in India, there is a scarcity for educational materials in Braille. Since the printer is expensive, smaller institutions cannot afford to buy it. Students rely on audiobooks or other people to read out the text material to them. We hope that in the long run, our work would reach the end-users. This would improve independence and accessibility to literacy for people with visual impairment.

Thank you