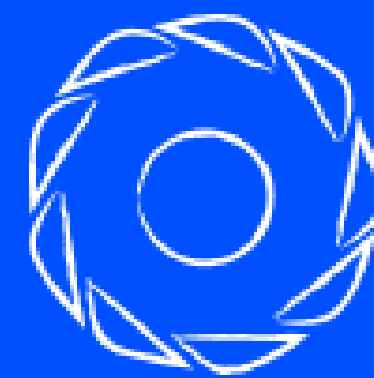




MAGIC FRAME

Team Members- Lakshya Mittal | Tarang Kamble | Bhawna Rani

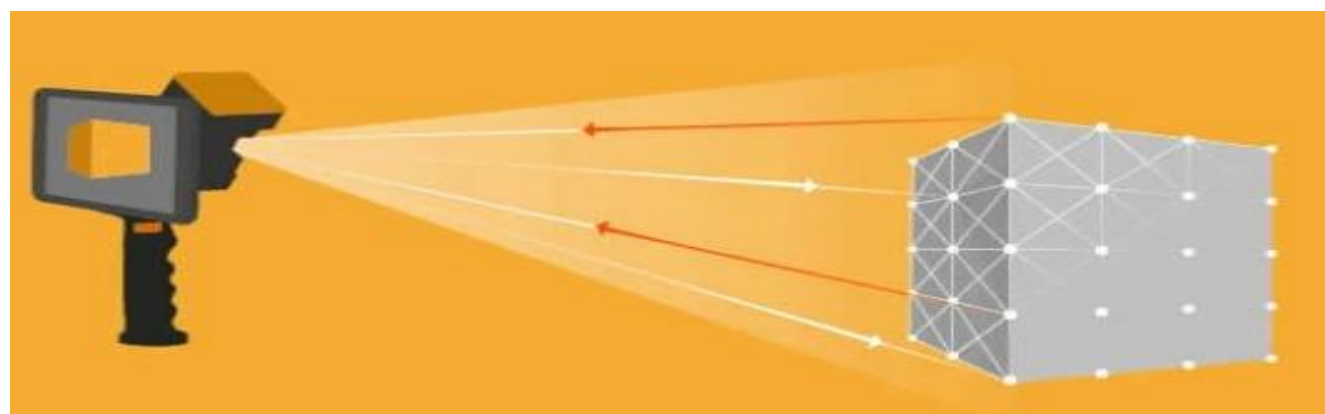


Abstract/Introduction

- ❑ Magic frame is a simple frame which has the ability to transform a normal screen into a touch screen area.
- ❑ It can be connected to any computer, which could be a laptop or a Raspberry Pi with a USB port.
- ❑ It is incorporated with a TOF10120 sensor which is mounted on a servo motor which oscillates repeatedly over time.
- ❑ It works by illuminating the scene with a modulated light source.
- ❑ The phase shift between the illumination and the reflection is translated to distance.

Methodology

- ❑ Several mechanisms were devised to get the desired product. It was finally concluded to go with the time of flight sensor.
- ❑ The sensor was mounted on the servo motor and its rotation gives the angle and sensor reading gives the distance..
- ❑ The distance and the angle are then feeded into a Python program which converts it into x, y co-ordinates, the cursor then traverses as per the touch movements.



- ❑ The connections were completed and readings were communicated from Arduino to Python serially.
- ❑ The hardware was modeled and laser cut to fit the screen as per our requirements.
- ❑ The components were assembled, and our model is ready to be deployed.

Results



Conclusion

- ❑ The frame is capable of transforming a simple screen into a touch screen area which responds to touch movements.
- ❑ We programmed the magic frame so that each area of the screen responds as a portkey press and can talk to it by using a very simple protocol.
- ❑ It can be used to play simple games with our touch movements.
- ❑ It can be extended as a tool to draw various objects without any external aid such as a stylus.
- ❑ The communication between Arduino and Python might create some lag in touch movements.

Advantages

- ❑ It is a completely cost effective alternative as compared to existing solutions such as Air bar which costs around 10 times more than our product.
- ❑ Magic frame is a pocket friendly portable device to make our life easier.

