HOLOGRAPHIC TOUCH SCREEN

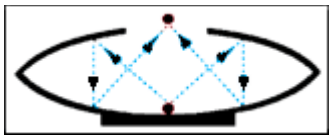
ABSTRACT :

Our goal is to create a hologram which acts like a touch screen and corresponding changes are displayed in the hologram itself. The hologram will be created using concave mirrors since they produce virtual images.
This could be used for the following purposes :-

- GenNext Technology, will replace tablet touch screens in the future, as seen extensively in sci-fi films
- Hardware is completely hidden so it can be used in high level security areas as the hardware cannot be physically accessed or hacked into.

THEORY

Basically, we want to create a holographic touch screen. The idea behind making a hologram will be using concave mirrors. The concave mirror arrangement will be as follows:



Outside the mirror arrangement there will be a frame of IR sensors which will detect the XY coordinates of the finger. Also we will be planning to place a ultrasound arrangement so as to create vibrations at the finger.

IMPLEMENTATION

1. At the centre of the mirror we will be placing an LCD screen whose hologram will be created at the upper hole.
2. When one tries to touch the hologram the IR sensor frame will detect the position of the finger and whatever changes are made in the hologram will be correspondingly made in the LCD screen and in the microproccessor also.
3. When the finger is detected vibrations will be produced at that point by using ultrasound arrangement.

TIMELINE

Week 1 : Assembling the mirror arrangement so as to obtain a “hologram”.

Making the IR sensor frame and adding it to the hologram arrangement.
Week 2 : ATMEGA programming into the LCD in order to get a working touch screen. Integrating it with the IR sensors, so as to obtain a holographic touch screen.
Week 3 : Adding the Ultrasonic sensors in order to give a touch vibration during the input.
Week 4 : We plan to implement a calculator , piano or a small game depending on the time available.

COMPONENTS

- Concave Mirrors
- Frame of IR Sensors
- LCD Screen
- Ultrasound Sensors (optional)
- ATMEGA Programmable Chip and Programmer

COST

Greatly depends on the availability and quality of the items purchased. We think the above components can be purchased within 5k.

TEAM

- Spriha Biswas
- Kalpesh Krishna
- Meet Udeshi
- Karan Chadha