

## Proposed Solution:

| Sl. No | Parameter                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Problem Statement (Problem to be solved) | Computer information technology is increasingly penetrating into the hospital domain. A major challenge involved in this process is to provide doctors with efficient, intuitive, accurate and safe means of interaction without affecting the quality of their work. Keyboards and pointing devices, such as a mouse, are today's principal method of human—computer interaction. However, the use of computer keyboards and mice by doctors and nurses in intensive care units (ICUs) is a common method for spreading infections. Even though voice control also provides sterility, the noise level in the operating room (OR) deems it problematic. Our solution for this problem is the use of hand gestures as an alternative to existing interface techniques, offering the major advantage of sterility. In our work we refer to gestures as a basic form of non-verbal communication made with the hands. |
| 2      | Idea / Solution description              | In this project Convolution Neural Network is used. First the model is trained pre trained on the images of different hand gestures, such as a showing numbers with fingers as 1,2,3,4. This model uses the integrated webcam to capture the video frame. The image of the gesture captured in the video frame                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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|          |                                       | is compared with the Pre-trained model and the gesture is identified. If the gesture predicts is 1 then images is blurred;2, image is resized;3,image is rotated etc.                                                                                                                                                    |
| <b>3</b> | Novelty / Uniqueness                  | The proposed system prevents surgeon's focus shift and change of location while achieving, rapid intuitive interaction with image databases. The system allows the surgeon to use his/her hands, their natural work tool. Non-verbal instructions by hand gesture commands used in this project are intuitive and fast.  |
| <b>4</b> | Social Impact / Customer Satisfaction | This system assists surgeons while performing operations at a fast rate without any physical contact. Customers are highly benefited as the surgeries can be performed without touching any pointing devices. It also saves time. It can also be placed in other industries like banking. It can also help blind people. |
| <b>5</b> | Business Model (Revenue Model)        | This system can be used in hospitals and diagnosis centers. It can also be placed in private and government medical camps.                                                                                                                                                                                               |
| <b>6</b> | Scalability of the Solution           | More number of gestures can be added so that the can be improved. In addition to this, more number of images can be added so that the system makes correct prediction.                                                                                                                                                   |