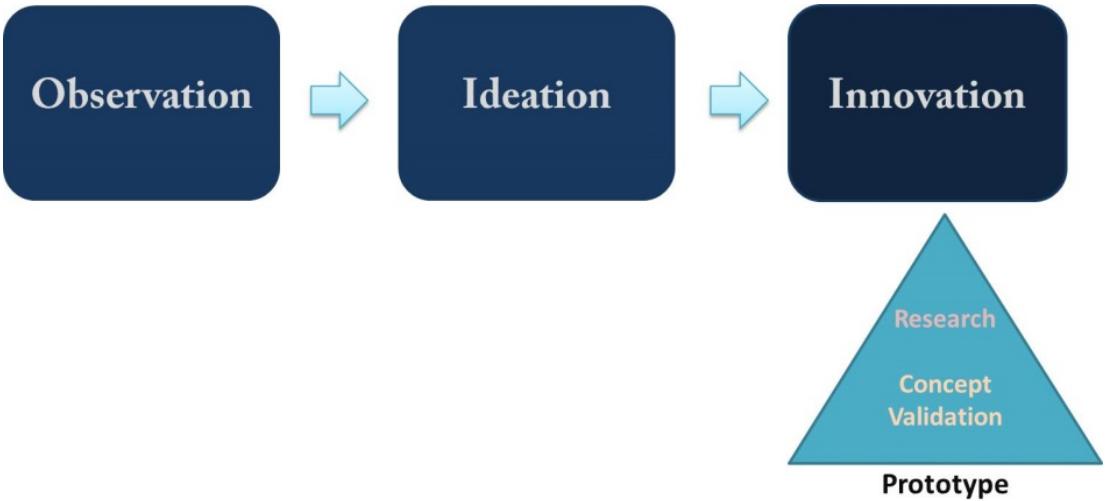
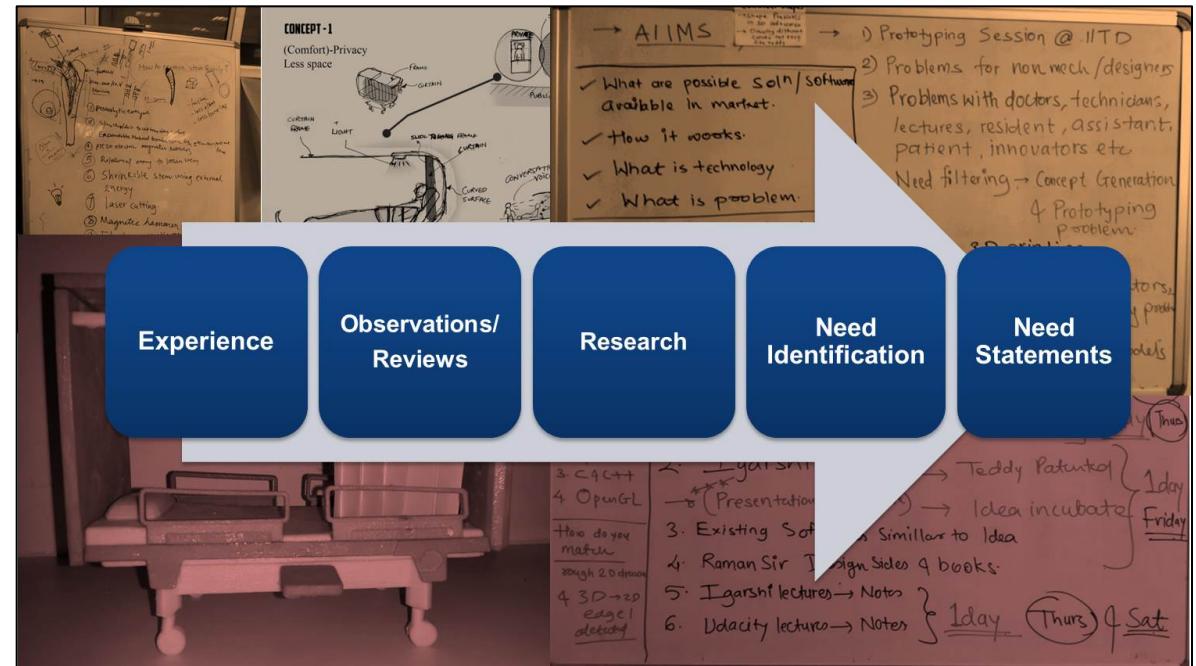
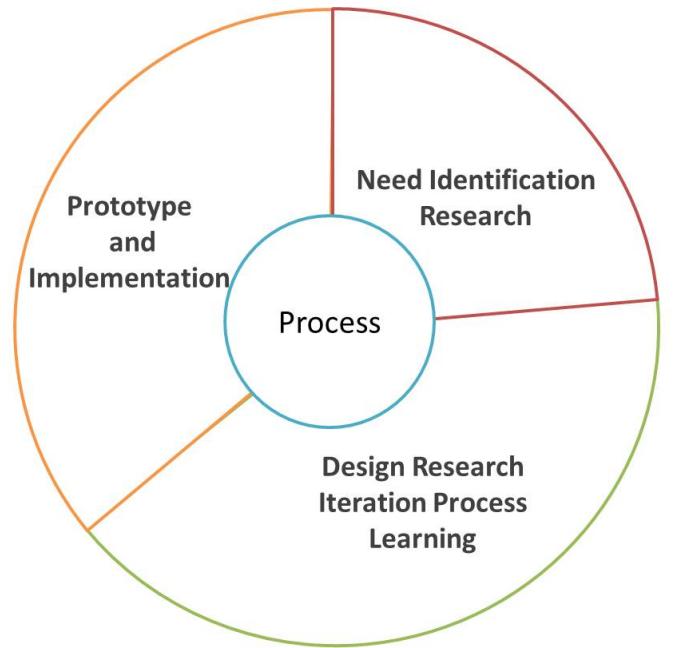


DrawN

An Interactive System for Freehand Sketching and Sketch Based Retrieval of 3D Object

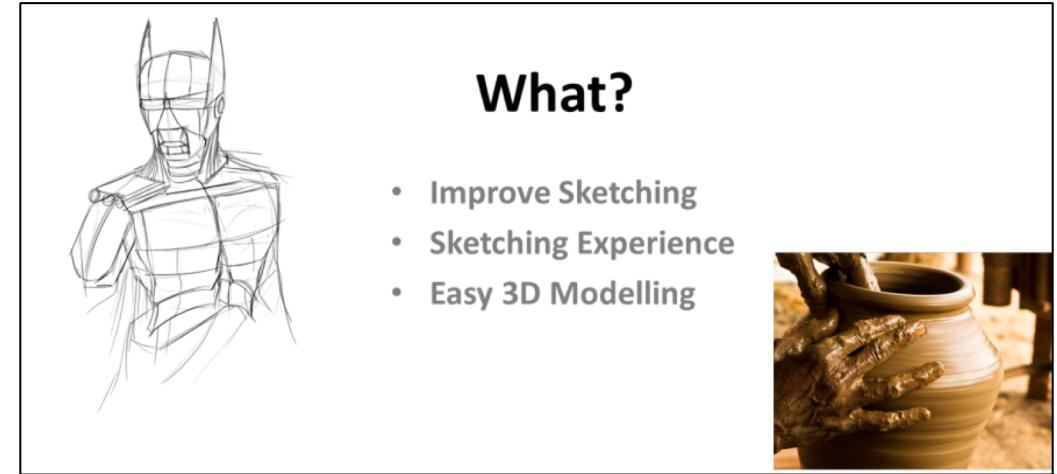
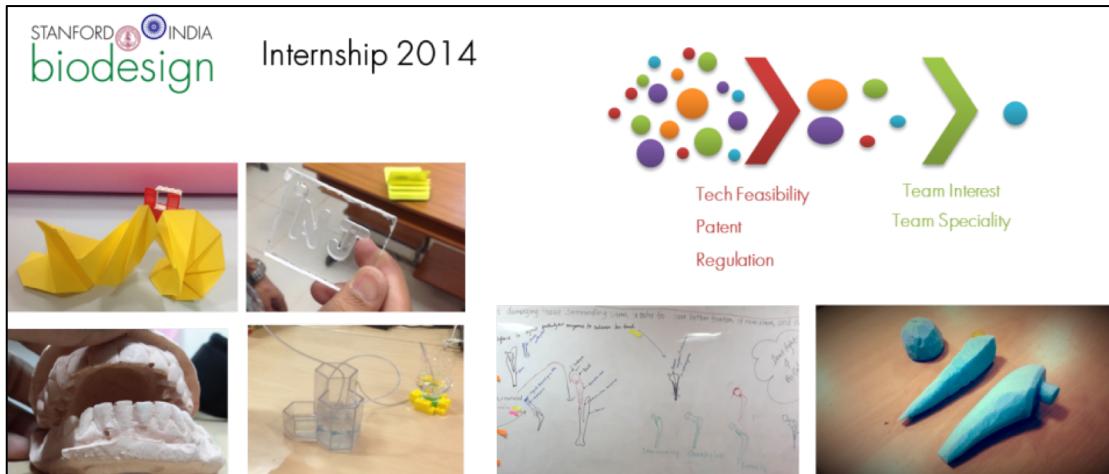
To enhance sketching abilities, ideation and visualization among children and to provide an aid in education



Objectives

- Improves user drawing
- Ease of building complex 3D object in space
- Sketch based 3D model/information retrieval
- Game, constructive involvement in system and Feedback to user
- Real time communication assistance

Need Research and Ideation



Why?

- **Primary**
 - Visual Language of communication
 - Important Skill in Design Process
 - 3D models provides clear ideas about the concepts
 - Simulations to prior to actual implementation
- **Secondary**
 - 3D printers are in boom
 - Stimulates the brain activity and imagination

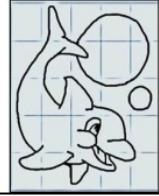
How?

- System that will assist the user in real time
- Blending of human intuition and Intelligence of computer
- Engage the user in process
- Feedback system

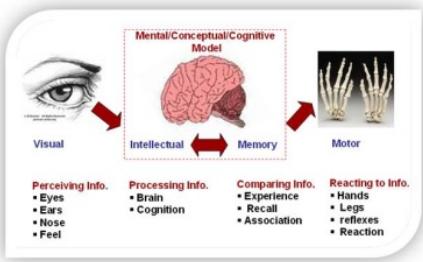
Interaction Process

Elements of Sketching and Modelling

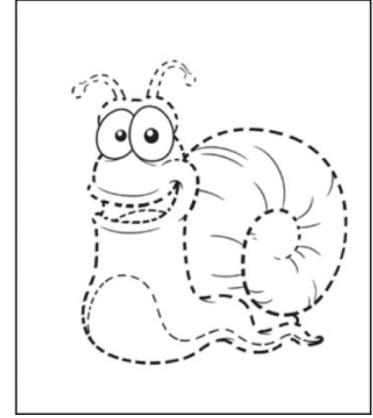
1. Drawing by looking at objects
2. Drawing by tracing and block by block
3. Drawing by memory or cognitive image
4. Drawing by association or idea of object



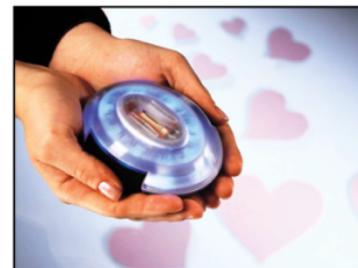
Visual Perception Cognition Motor Skill



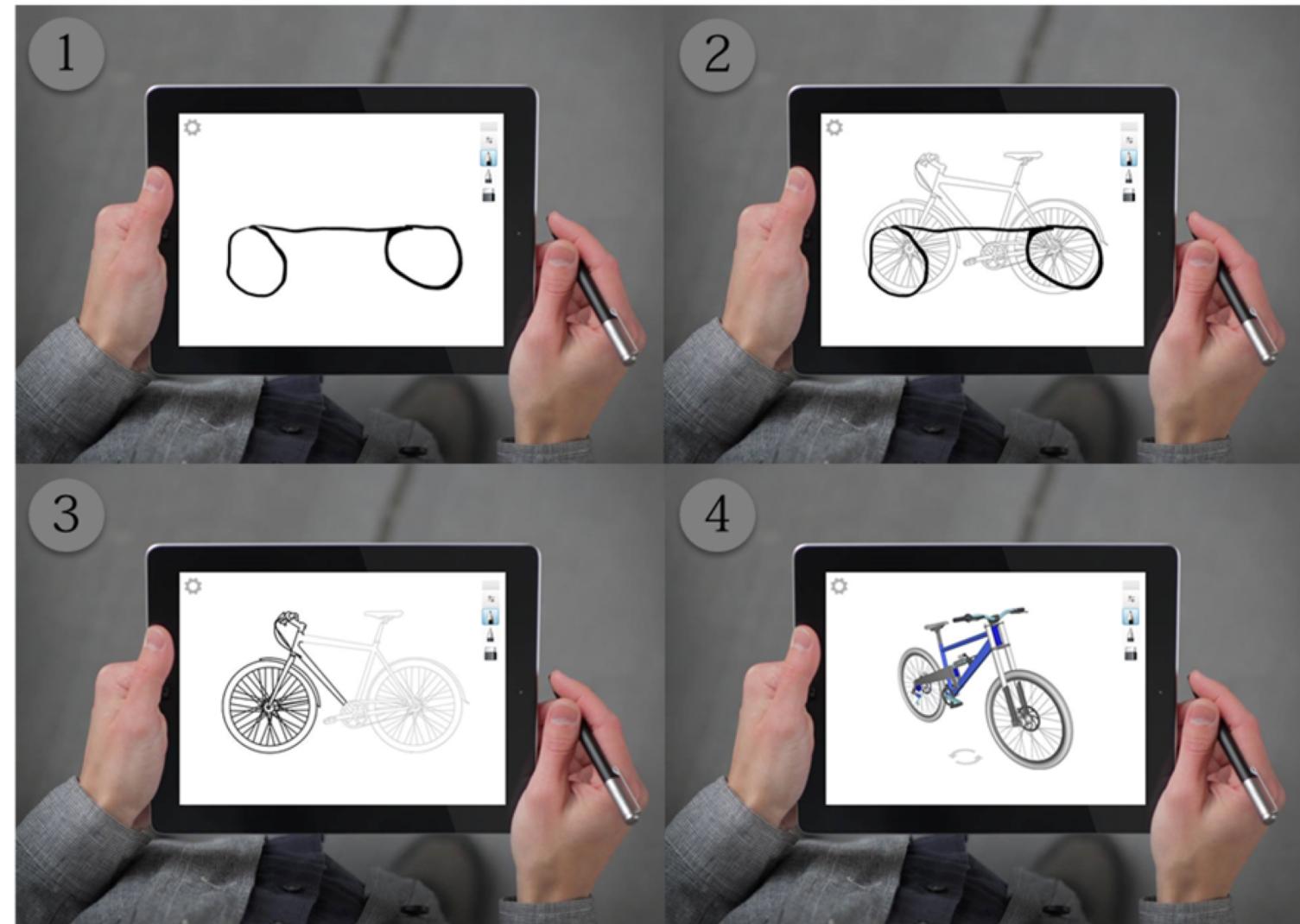
Tracing and connecting the dots



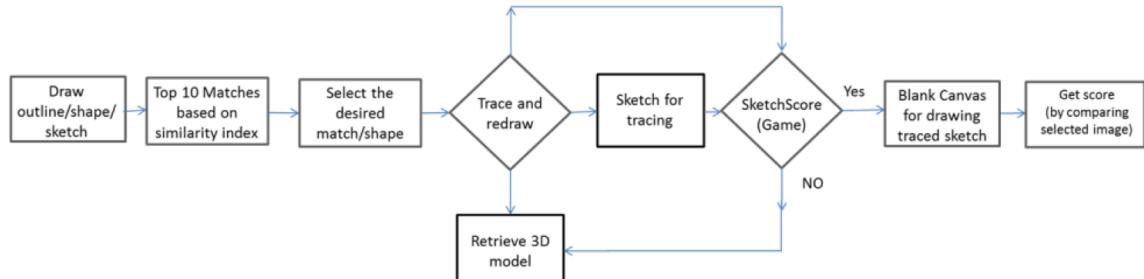
- Existing 3D modelling software's : Purpose and complexity and Time
- Can we associate 2D Abstract Sketch with 3D modelling?



Proposed Design



Architecture of DrawN



View Selection and Line Rendering

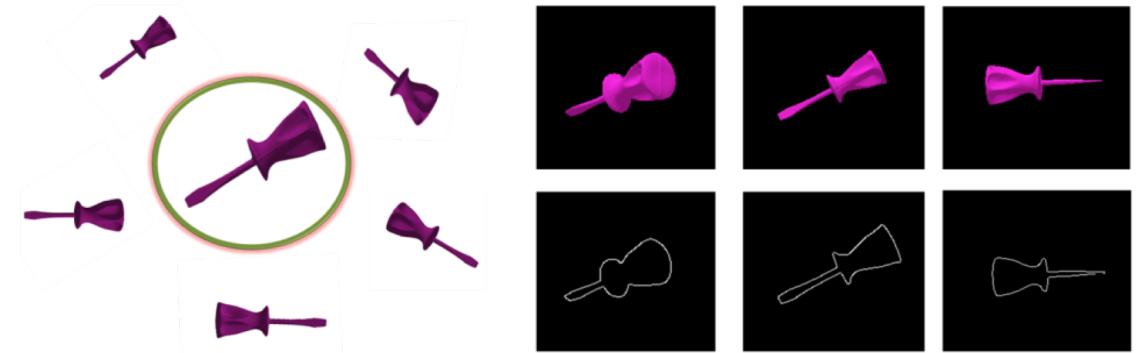
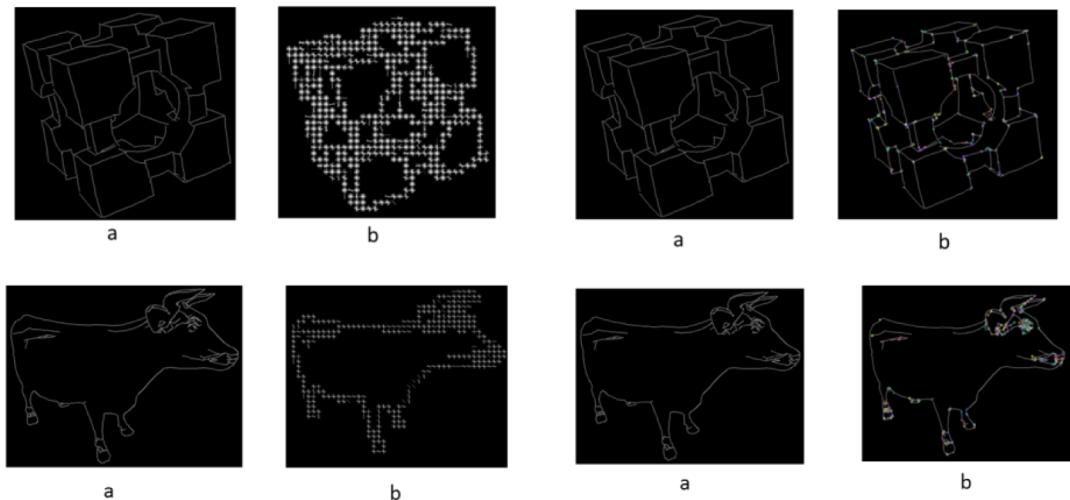
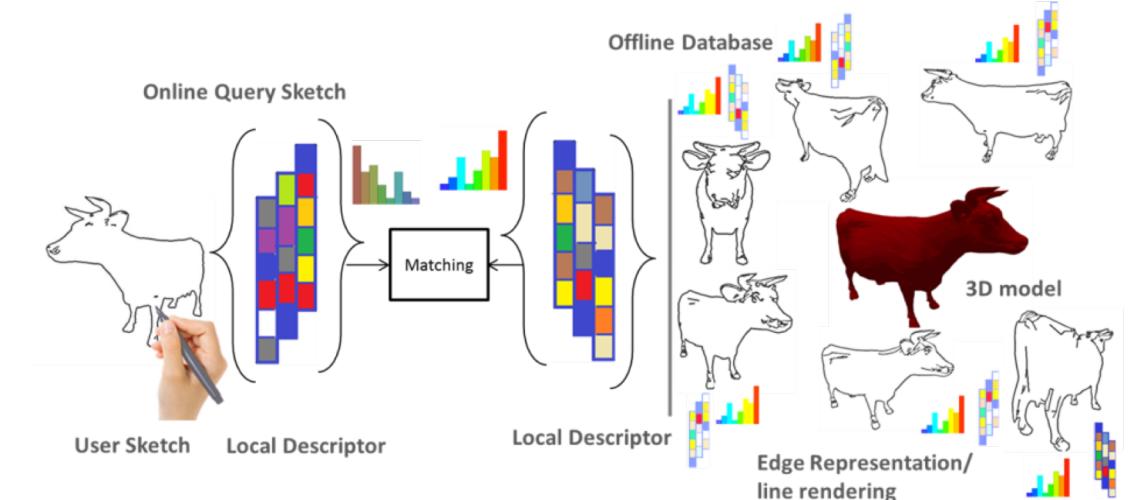


Image Representation



Methodology





Match

3D
Object

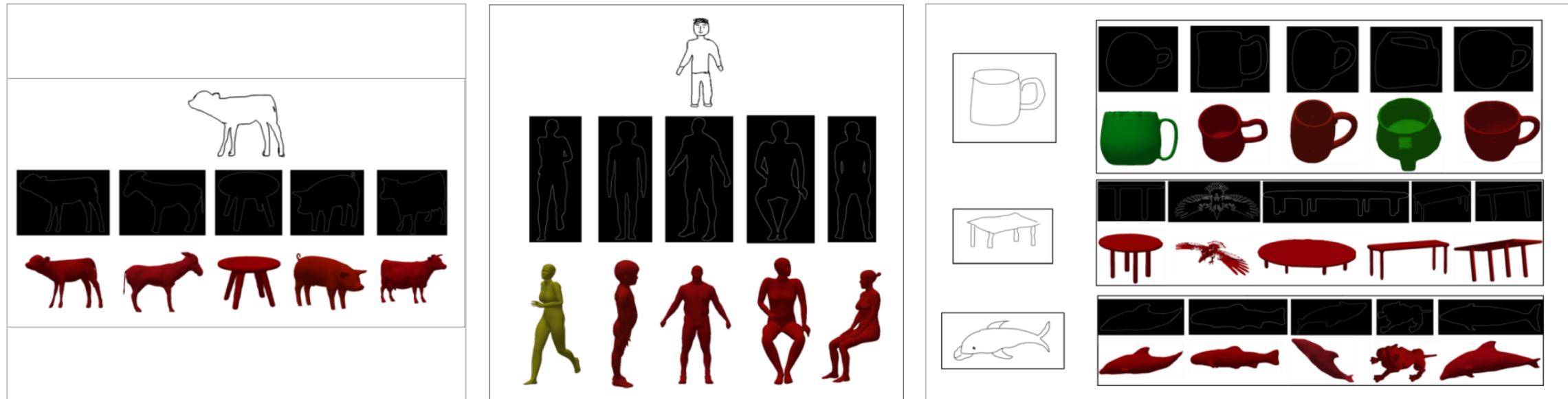
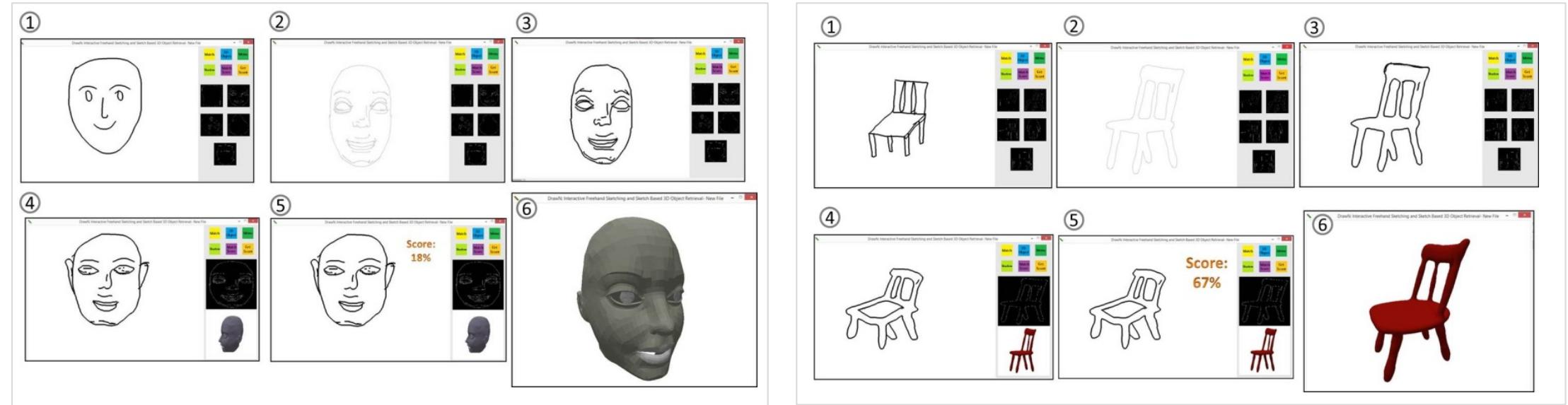
Menu

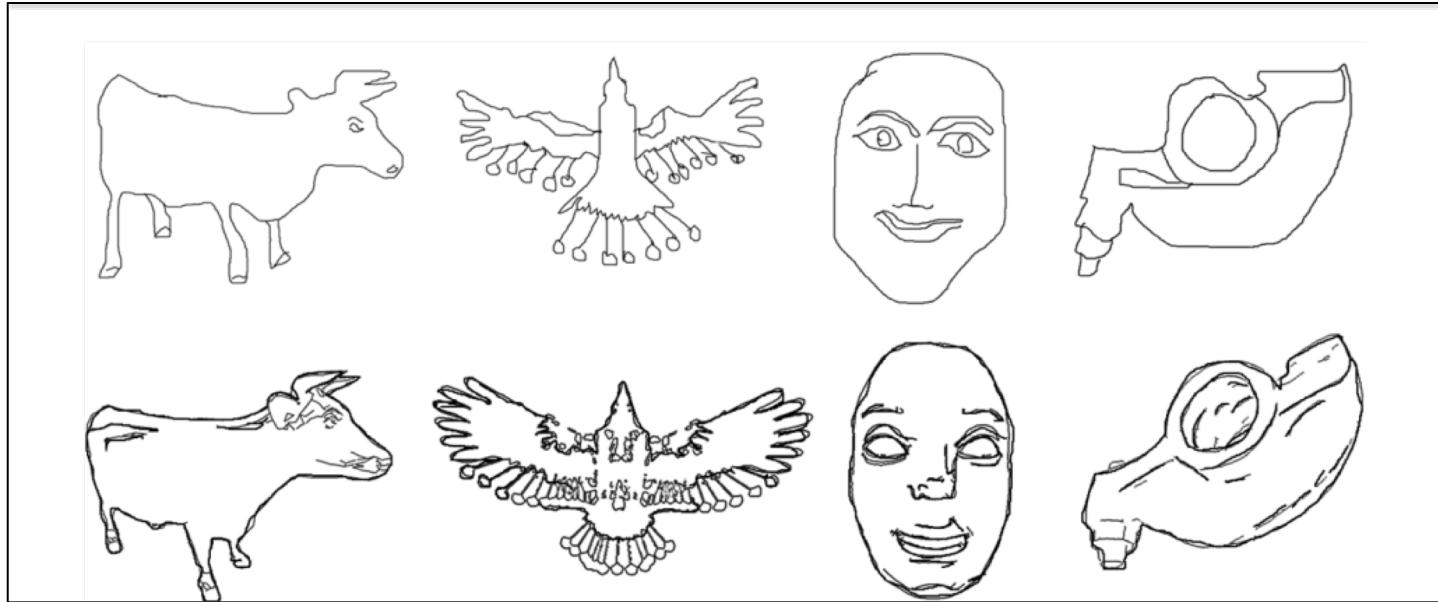
Shadow

Match
Score

Get
Score

Working Interactive Interface





Applications

- Children, non-professionals and students for improving sketching as well as making easy and freehand 3D models for real time communication
- In education for teachers while elaborate explanations
- For doctors to explain concepts and diagrams
- For Students to make different models understanding complex figures
- For Children and non-professionals to make small animations and quick 3D prototypes
- In professional world to provide real time illustrations and visual representations.