



SketchIt

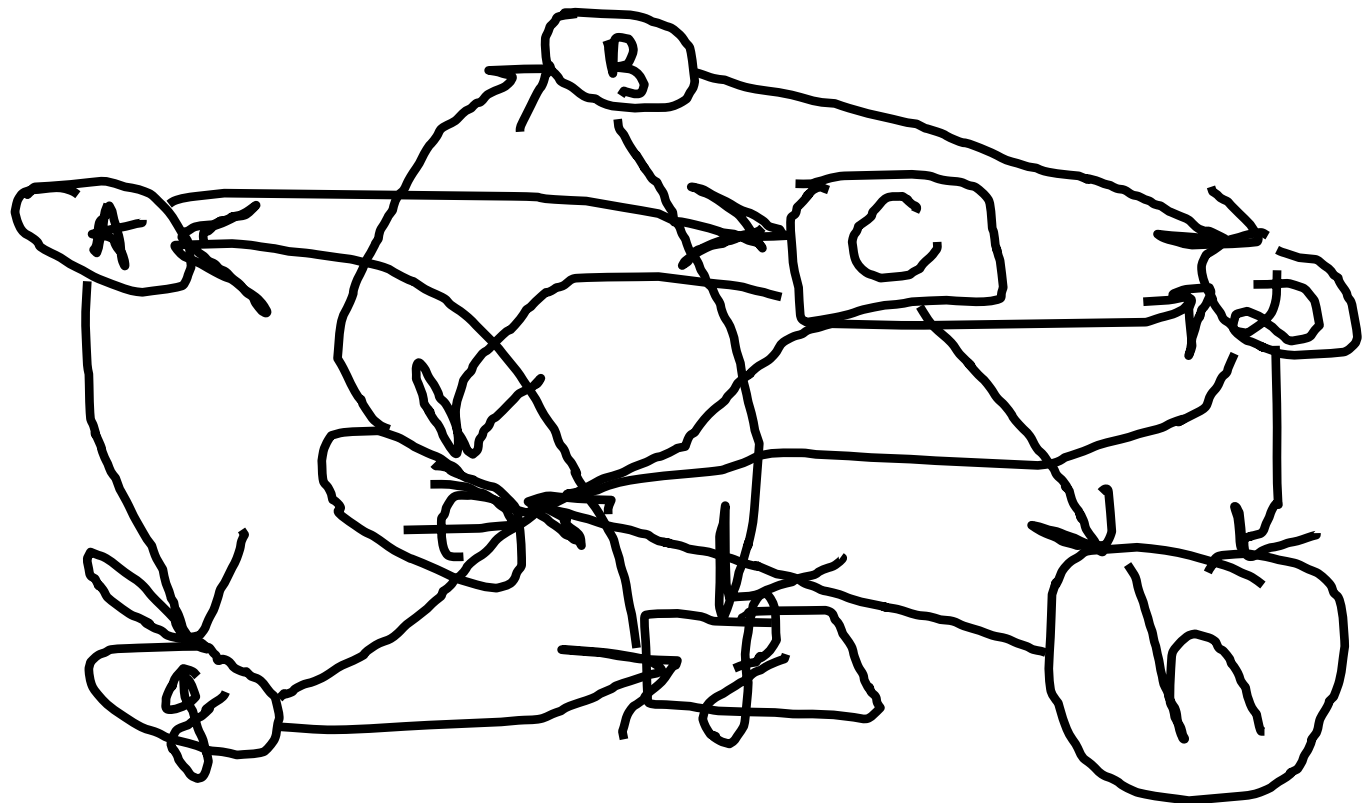
**Simple Vector Scheme Editor
For Mobile Devices
with Touch Screen**

<http://fruct.org/sketchit>

Vitaly Petrov, Evgeny Linsky, SUAI

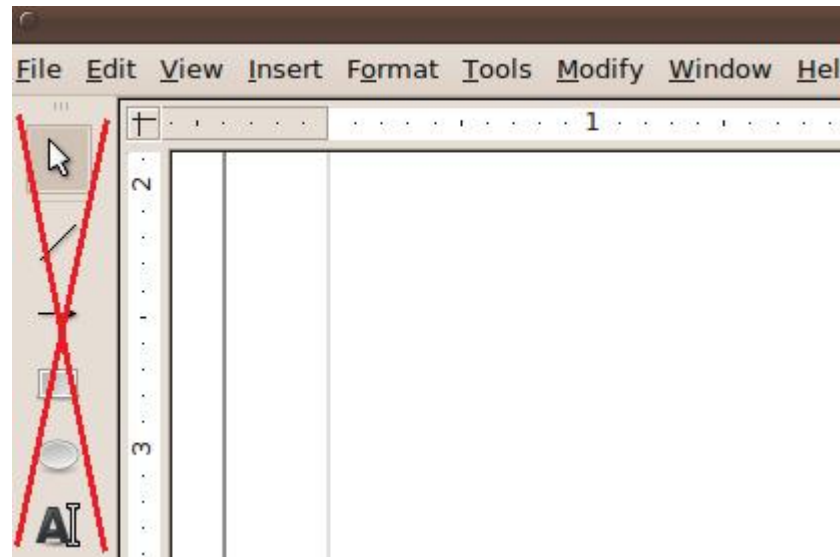
Problem description

How to draw a scheme both fast and accurate?



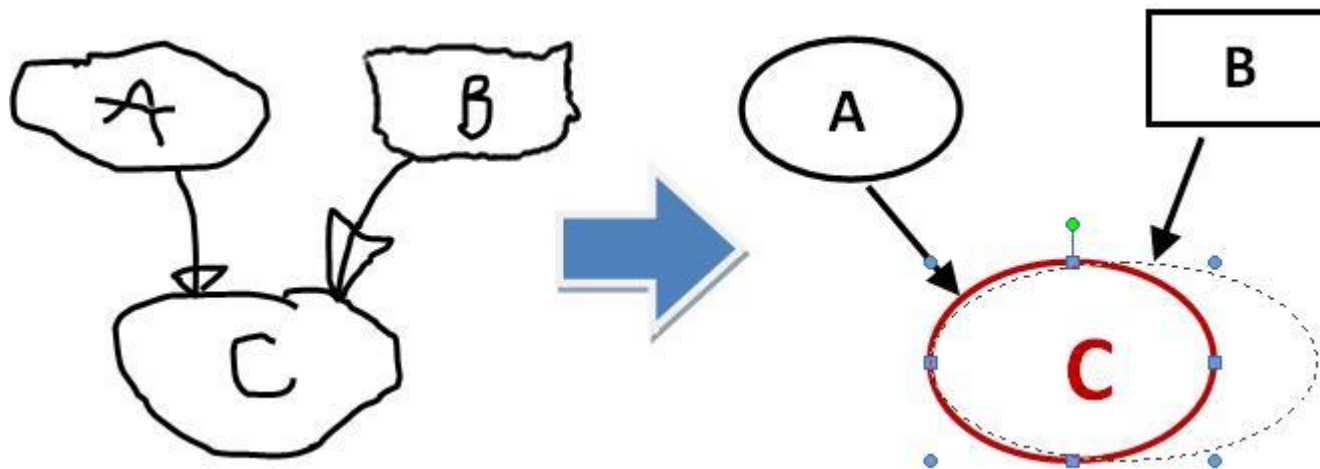
Traditional schemes issues

- **Complicated**
- **Slow**
- **Not-suitable for mobile devices**



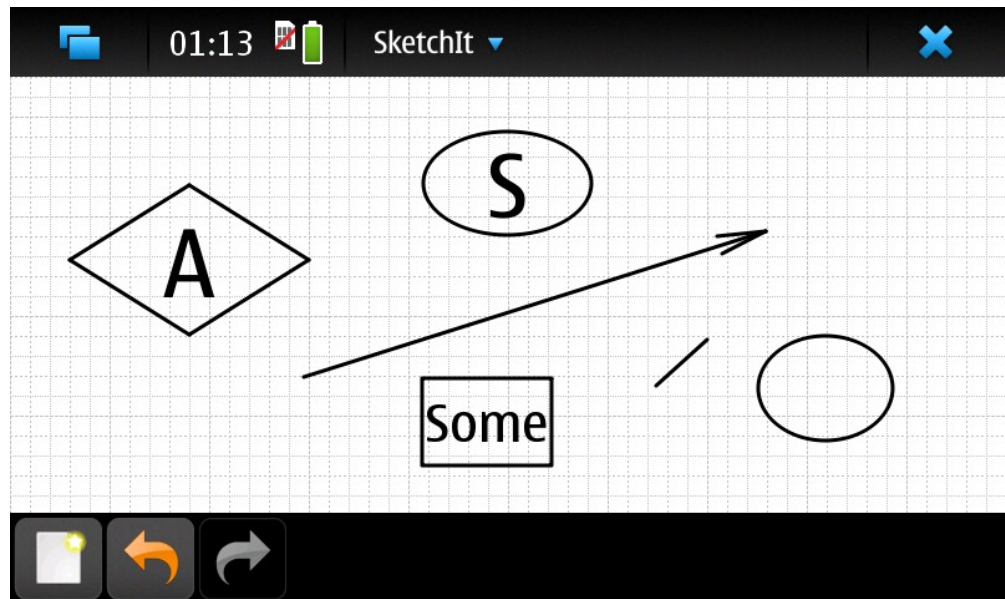
Sketchit idea

Figures auto recognition technique

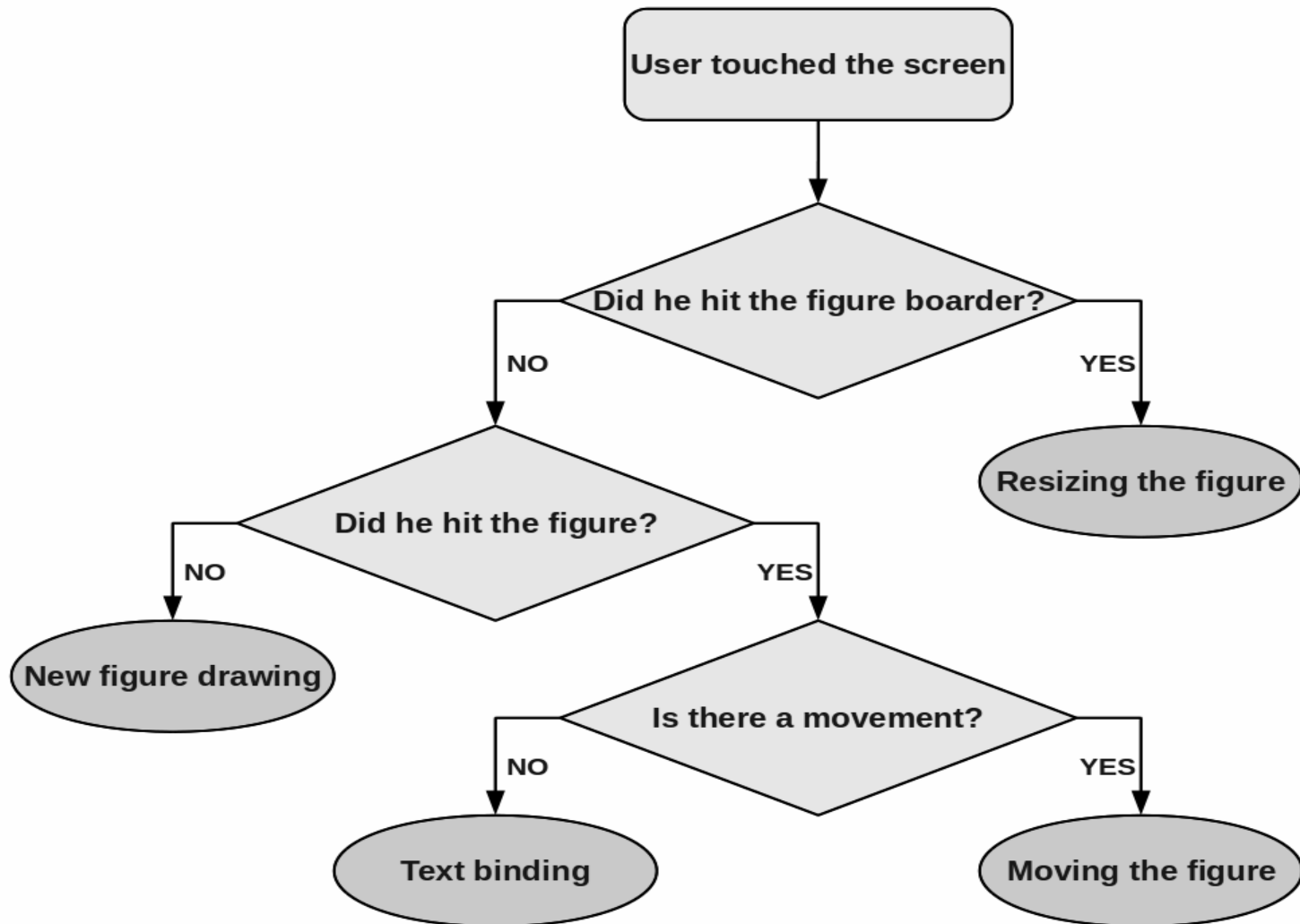


Functionality

1. Auto recognition of figures (basic set: line, arrow, ellipse and rectangle)
2. Moving, deleting and resizing of figures
3. Binding text to figures
4. Export to PNG and SVG formats
5. Undo and redo

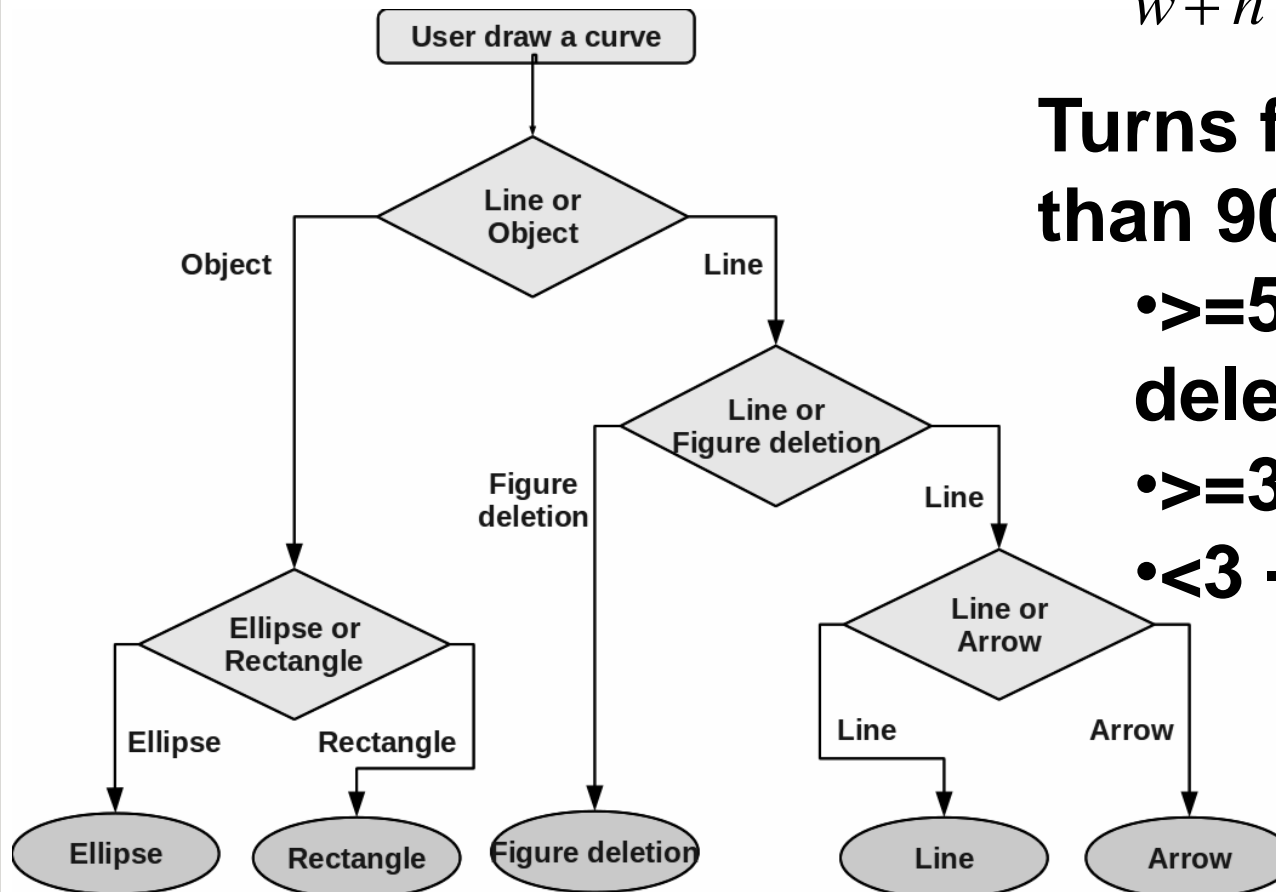


User actions recognition algorithm



Figures type recognition

$$E = \frac{|x_{end} - x_{begin}| + |y_{end} - y_{begin}|}{w + h}$$

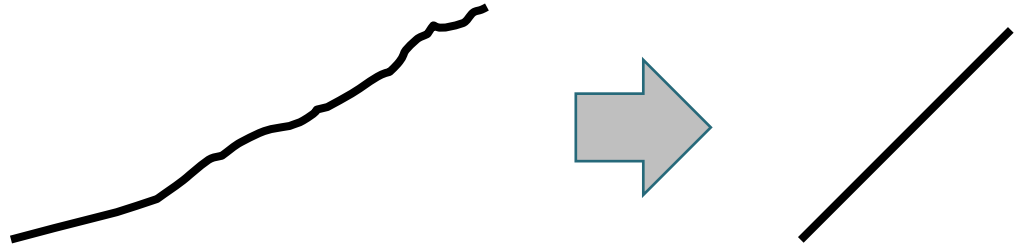


Turns for more than 90 degrees:

- ≥ 5 – deletion
- ≥ 3 – arrow
- < 3 – line

Line/arrow/deletion chose

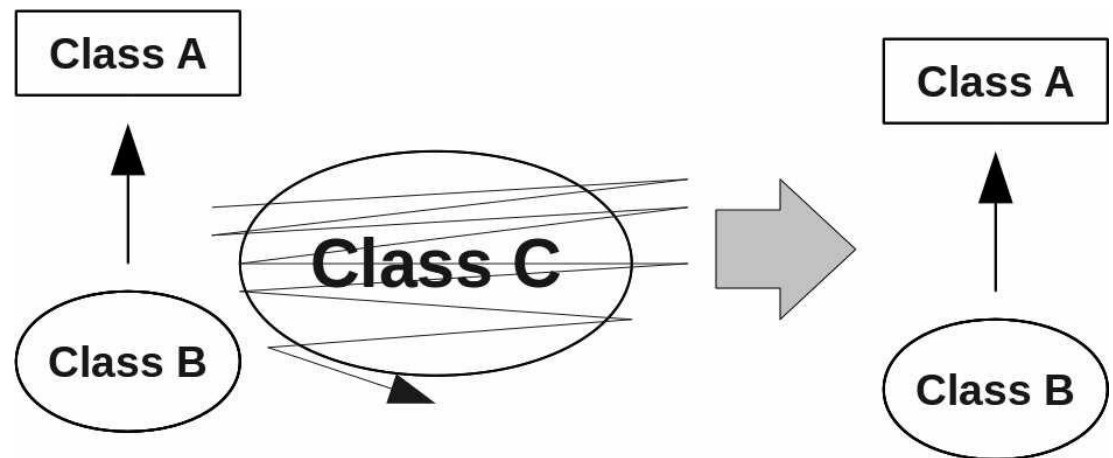
- **Line**



- **Arrow**

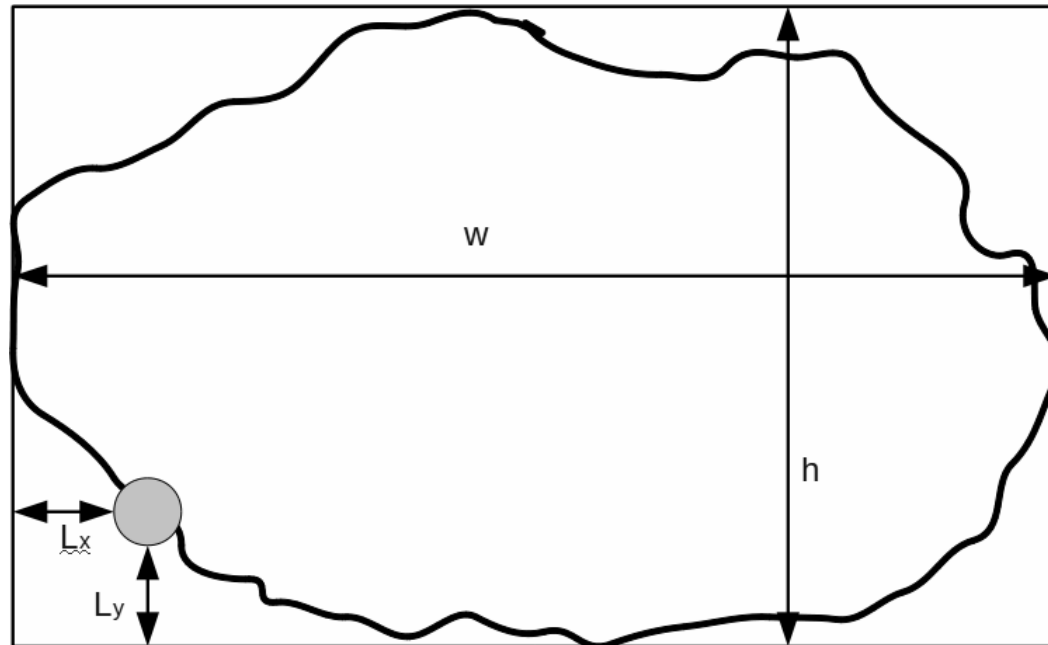


- **Figure deletion**

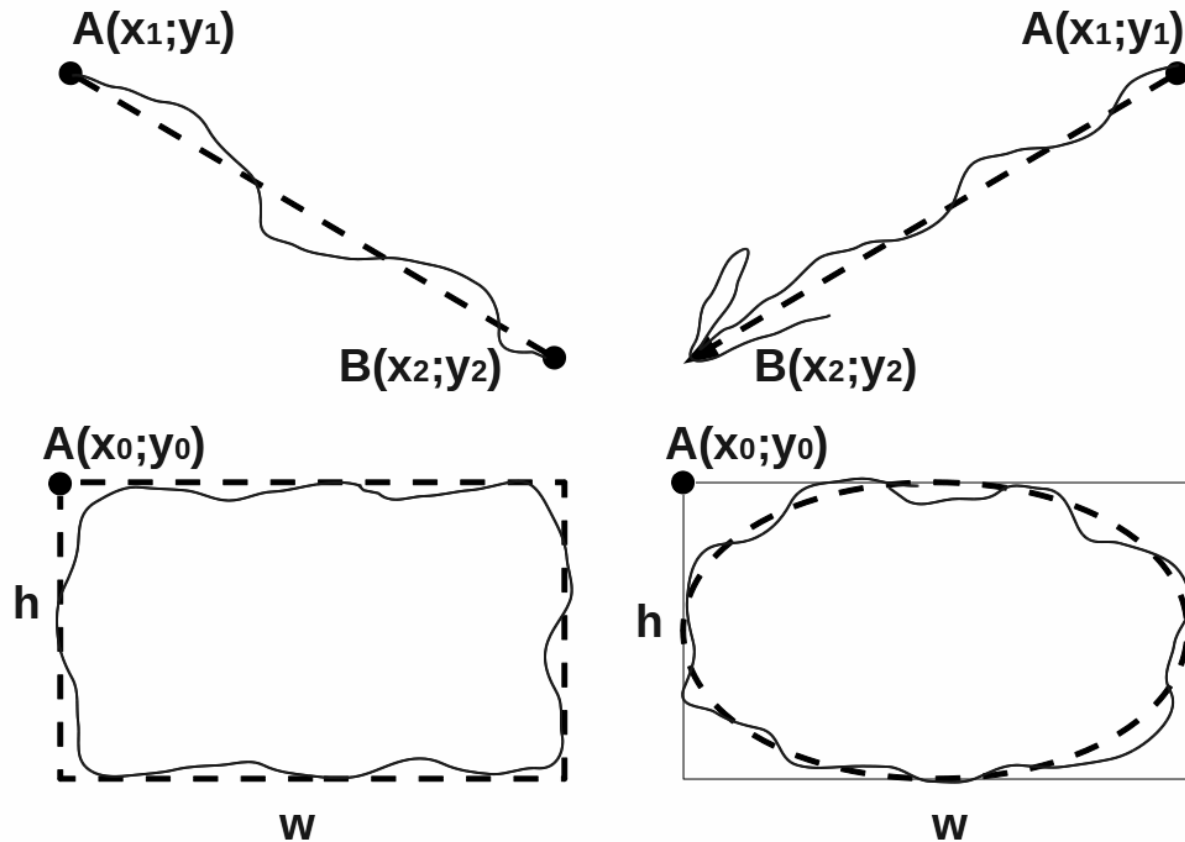


Ellipse/rectangle/diamond chose

$$H = \frac{1}{N} \cdot \sum_{i=1}^N \left(\frac{L_{xi}}{w} + \frac{L_{yi}}{h} \right)$$

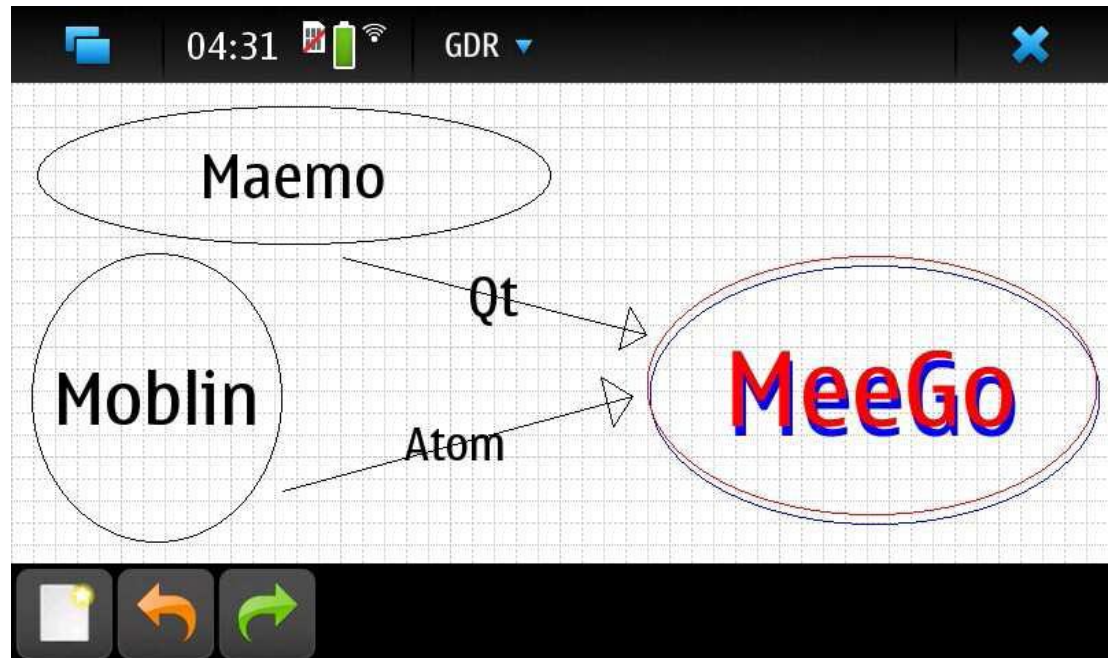


Figures parameters recognition



Summary

- It works!
- Handsets are more suitable
- ***Sketch It*** during the demo session



Drawing is easy!

