

ROUGH SKETCH

TPAD CHALLENGE PROPOSAL FOR BETTER DRAWING

PROBLEM

Current drawing tablets are difficult, offer no subtlety, and are just plain no fun.

Ask any digital artist: using a standard drawing tablet just doesn't *feel right*. They're hard to control, take forever to learn, and are finicky once you've got them going. Top products will use pressure and angle to afford a few more dimensions of control, but what's missing is that feeling of feedback from the page—and from the pen. We hope that the TPad can help put some of that feeling back into digital drawing, and make drawing on a computer fun.

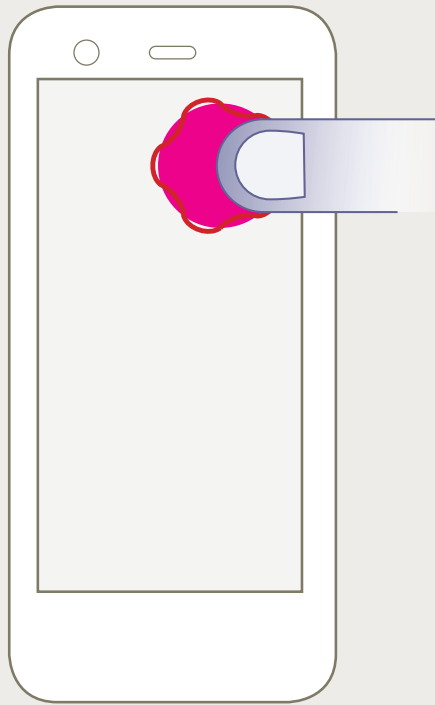
We propose a simple drawing application called *RoughSketch*. On the surface, it would be just a simple paint program, but the purpose would be to explore how far friction can augment the digital drawing experience. This can extend far beyond making pictures on your phone, from something as simple as making annotations on a PDF less painful, or as complex as helping a digital painter complete a masterpiece.

FINGER PAINTING

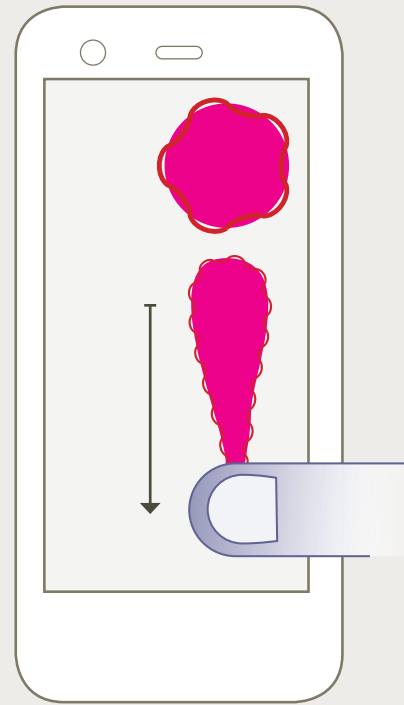
MAP FRICTION TO AMOUNT OF SUBSTANCE

Imagine that you're painting. As you use up the paint on your brush (or finger), friction increases.

Many types of artistic media work that way. Oil paint, watercolours—anything spreadable. Different initial friction levels and variable lengths of decay could emulate different viscosities or amounts of paint.



Low or no friction as a user touches a daub of paint



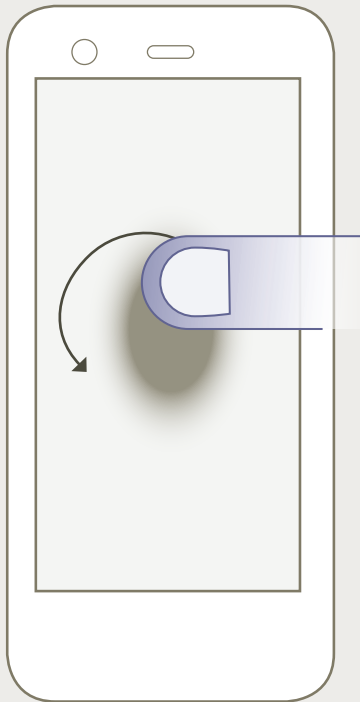
Friction increases as paint on finger runs out

SHADING/ERASING

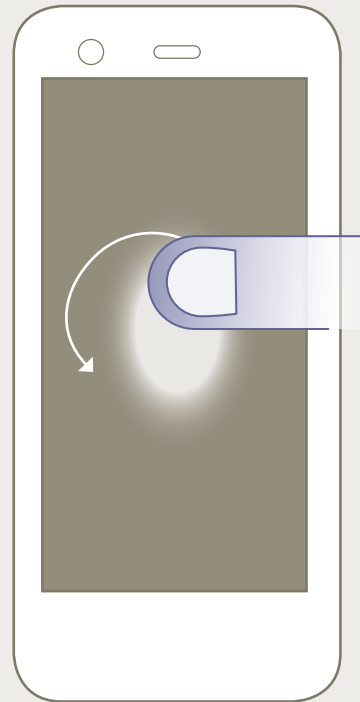
MAP FRICTION TO LUMINOSITY OF AN AREA

What if there was direct tactile feedback for soft boundaries?

Drawing is more about shading than it is about making lines. This involves going over the same area again and again until the contours of a piece emerge. These contours would emerge clearly if you were able to slowly 'paint' the friction on to an area.



The more you go over a spot, the more friction it gets



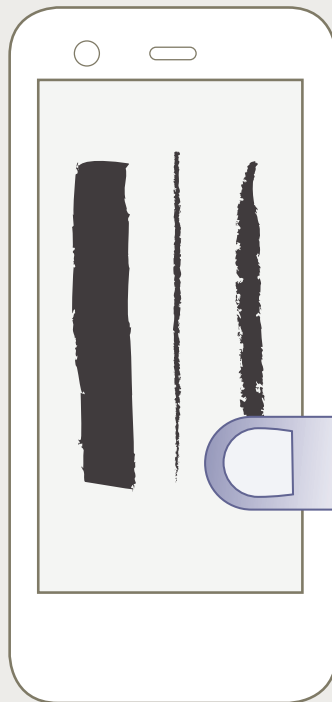
Or the opposite—
Sometimes painting and erasing go hand in hand

IMPLEMENTS

MAP FRICTION TO GRAIN

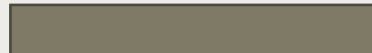
Every type of drawing implement feels different. Every kind of paper feels different.

A pen should feel different to use than a crayon. Every implement has its own kind of frictional signature. A pen rolls, a brush glides, and pencil drags. Similarly, tracing paper offers very little resistance, but thick watercolour paper slows down your stroke.



EXAMPLE FRICTION MAPS

SMOOTH FELT



PEN



CHARCOAL

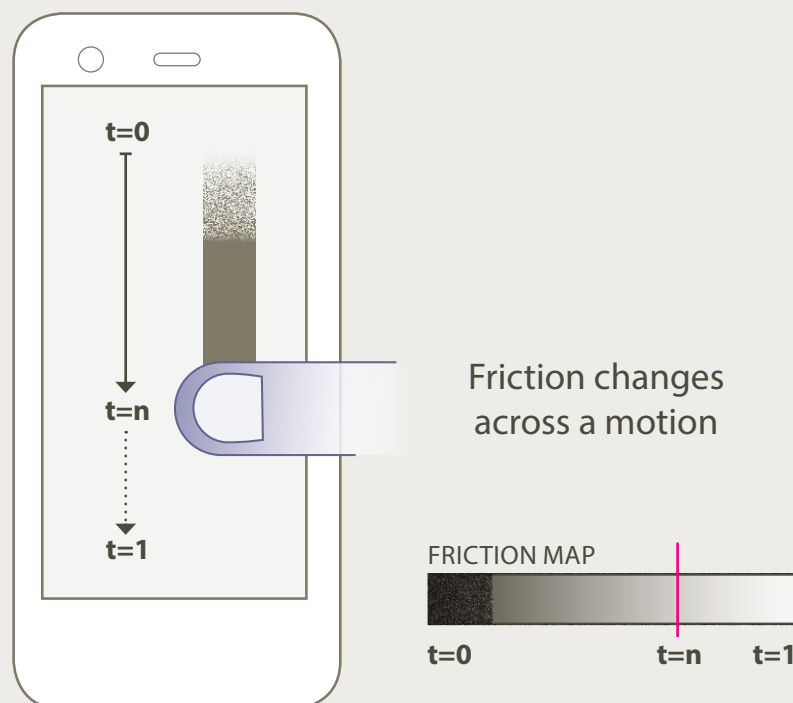


GESTURE

CHANGE FRICTION AS STROKE PROGRESSES

The beginning of a brush stroke doesn't feel the same as the end.

At the beginning of a stroke, a conte crayon has high friction. As the stroke progresses, the crayon heats up, reducing the friction. This type of gesture is important in bringing out some of the more subtle features of the implement. Coupled with visual feedback, the grain and dynamics of different implements could be simulated.

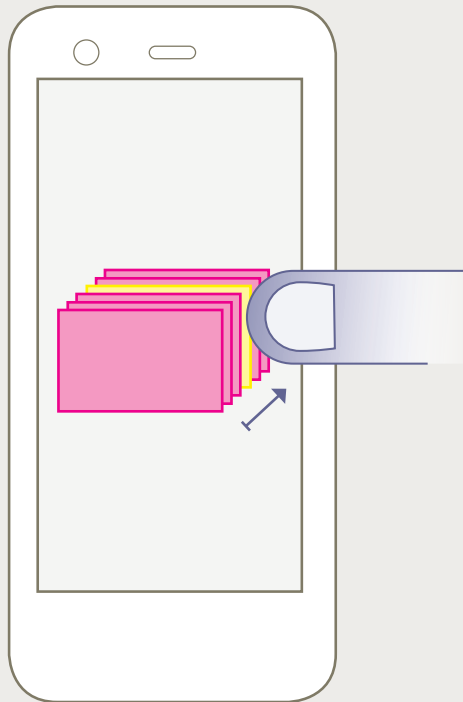


UI INTERACTION

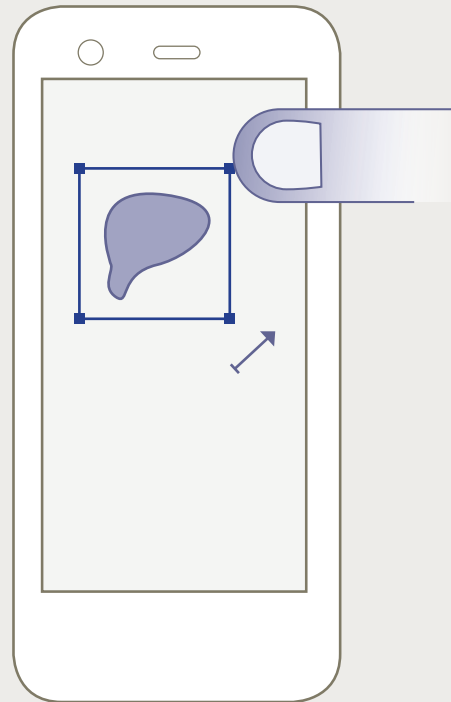
USE FRICTION TO IMPROVE SELECTION, TRANSFORMATION, ETC.

Could friction improve the experience of interacting with the page?

Most drawing programs include options to select, move, and transform the objects on the page. Could adding friction improve selection techniques?



Friction increases through layer stack



Friction increases as transformation progresses to stop slipping.