my name is Chris Conover and I'm a UX

Engineer at Google and my name is partic

and I'm a designer at Google if you're

interested in turning your ideas into a

real experience running on an actual

device then this video is for you this

is the second part in our series on

prototyping mostly Maryam talked about

sketching and paper prototyping in this

video we're going to talk about digital

prototyping digital prototyping is the

process of exploring an idea by building

an interactive experience explaining

abstract ideas and words can be tough

by creating an interactive design

artifact that other people can

experience themselves your ideas become

real digital prototypes are very helpful

when you're pitching an idea trying to

explain the design detail to an engineer

or running your user studies to validate

your designs best of all they don't

require you to know how to code which

makes it fast and easy to explore many

different ideas you know in a way

digital prototypes are a lot like

building models that architects create

an architect creates a model because it

gives their client idea of what the

finished building will look like without

hiring a construction crew and breaking

ground we use digital prototypes to

build experiences that look and behave

like the final app without using costly

engineering time over the last few years

we've seen a lot of new digital

prototyping tools enter the market they

each have their own unique set of

features and priorities some tools focus

on helping you build out the basic flow

of your app while others are more geared

towards exploring small interactions

today we're going to take a closer look

at two of these tools and see how they

can be applied to our work to give some

background our team is working on a

fictional ecommerce app and has produced

sketches and mocks showing the different

screens these artifacts had given the

team a pretty good idea of what we're

trying to build but we wanted to have

something that could be shown to

stakeholders or use to test with users I

created a digital prototype to

demonstrate the basic flow of our

e-commerce app

as you can see we have the homescreen of

our e-commerce app and I can do things

like scroll through the product feed to

go shopping and I can come up here and

look at this carousel of different

products and I can horizontally scroll

and I see this clock here let's say I

want to look into this clock and find

out more about it I can simply tap this

card and we'll transition to the product

detail page where we have a description

about what the product is and we can

also take the action to add it to our

cart so by tapping this Bab button we'll

get a toast here that confirms that this

Swiss railway clock has been added to my

cart and I can go back to the home

screen so to make this prototype

I use a tool called principle I'd like

to show you a few of the features that

made it easy to create it don't worry

about understanding everything I'm doing

this isn't meant to be a tutorial but

rather to expose you to the

possibilities of this tool so here we

are in sketch and we can see we have the

static versions of our designs now we

can import them into principle by

switching over to principle and clicking

the import button and now you see that

the designs we had in sketch are now

present in principle this is really

great because each design object that we

had control over in sketch is now

available inside a principle so you can

see inside the layer list we have access

to all these different cards and

different content pieces we notice in

the preview that we can't scroll

anything so the first step to making

this prototype feel a bit more real is

to add the ability to scroll the way I

do this is I'll click the content group

which is just this section right here

and under the vertical drop-down I'll

simply select scroll so now when we head

over to our preview window you'll notice

that we can scroll the content

vertically and we can apply the same

kind of thinking to this card carousel

here which we want to scroll

horizontally so we'll select the card

carousel and then under the horizontal

drop-down we'll switch it from static to

scroll so as you can see when I make

that change it updates my preview

automatically and so now we can test out

scrolling so we can scroll down and now

we can also scroll across

so our prototypes starting to feel a

little more real because we have

scrolling enabled but now we need to

figure out a way to get from this

initial screen to the product detail

page so we're going to talk about how to

add at Apple target that transitions to

a new screen so what we'll do first is

we'll select the card that we want to

make tap Abul and in this case we're

going to select our clock and then we

can click this little lightning bolt and

it'll show us a list of events that we

can listen to and we just want a basic

tap so when you tap this card it will

transition to the next screen

so this artboard is our detail page so

I'm dragging and then I'll just release

and we'll have a basic transition so now

let's try this out when I scroll down

and scroll over and then I click the

clock you'll notice that it

automatically switches to this new view

and it did a nice little transition of

the clock graphic to go up and this all

happen automatically which is a really

nice feature of principle so now that

we've created one tap target let's go

ahead and do another one to make it

possible to add this product to our card

so again I'll select this Add to Cart

button or fab and I'll click the

lightening bolt again and then I can

again choose tap and I'll just drag it

to the next artboard and what this will

do is it will make us transition to the

screen where this confirmation toast

here will appear so when we test this

out I can click this button and now the

toast appears and this confirmation is

great but the last thing we need to do

is make it disappear so for it to feel

realistic it needs to come into view

tell the user that they've successfully

added the item to their cart and then it

should disappear so here we are on our

page and when we click this you'll see

that the toast comes up and then it

disappears so the way we're doing that

is we can add an automatic transition to

the art board right here Auto and when

it's done animating it will switch back

to the previous state and if we click on

this transition up here we can see in

our animation panel that we can control

the duration of the toast using this

property here and so what we can do is

we can make this longer

and when we go back and test this out

you'll notice that it takes a little

while for it to like come up and it's a

slower transition so to fix that we'll

just drag it back to where we had it at

about a third of a second and we can see

that it animates in and then it animates

out and the way we have it pause on that

screen is we have this other animation

drawn out to two seconds I just want to

point out that as I'm making these

changes in here on this app and using

the preview it's also updating live on

my phone at the same time so if I again

shorten this duration here we'll notice

that it also works on the phone I can

set that back and there it is so with a

little work we're able to quickly get a

feel for how our app will work and have

an artifact that can be used to test

with users or communicate transition

ideas with other members of the team

we've only scratched the surface of what

principle can do so if any of this seems

useful to you I would encourage you to

visit w-w-w com to learn more there are

many other prototyping tools that can be

used to achieve similar results in our

next video my colleague parte quill

demonstrate prototyping and interaction

using a tool called form as you've seen

Chris created a basic prototype of

navigating through our e-commerce app

and adding an item to the cart using

Chris's prototype made the team question

if there might be a more efficient way

of adding an item to the cart without

navigating to the product detail page to

begin my exploration I start off by

working with the screens we had and

thinking about how we could incorporate

this feature I want to create something

more interactive and gestural since

we're working on mobile my initial

thought was to open sketch and design

the flow of this interaction there but

it's hard to convey motion gestures and

the overall experience of this

interaction in a static format since the

scope of this work is narrow and gesture

based I decided to use form to create an

interactive prototype form is a node

based prototyping tool for iOS and Mac

here's the home page of the e-commerce

app you can tap and hold on a card to

make it draggable then you can drag it

over the cart icon to add it to the cart

once you let go the carousel

top shifts over indicating that the

radio card has been added to the cart

this prototype clearly communicates my

design to others form also lets me share

this with anyone by simply shaking the

device let's take a look at how you

would build something like this you

start by connecting a series of patches

together to create functioning

prototypes patches are a little chunks

of logic that can be connected together

a patch can take in a value through its

inputs and then output the modified

value for example let's take a look at

how panning the radio card works

starting from left we have the pan

gesture which is connected to my radio

card image I use this patch to add the

ability to pan things around the gesture

outputs the X&Y pan which correspond to

the position of the touch on the screen

so to move the card let's say on the

x-axis I take the x pan out put put it

through a spring patch which animates

the value and then input that value into

the x position of the image patch since

I want the card to follow the position

of my touch that's a quick overview of

form if you're interested in learning

more check out the tutorials at our LT

Wacom today we took a brief look at two

digital prototyping tools but there are

many more out there

I urge you to try out several to find

the one that fits into your workflow

don't miss the next part of our series

where you'll learn about native

prototyping