Opal

Company Summary:

Opal is making it easy to look and sound professional on video calls. This team is focused on building the best camera on the market today, and over the coming months will be continuously pushing the product to bring more delight to users.

☝ **Note** Feel free to directly quote anything within this document. Thanks for writing.

General Info

Company Name:	**Opal Camera Inc.**
Founded:	**2020**
Headquarters:	**San Francisco, CA**
Waitlist:	**Over 16,000**
Funding:	Raised a Seed round from Kindred Ventures, 776 Ventures, Offline Ventures, and others who have changed the camera world forever: cofounder of Instagram Mike Krieger, cofounder of Youtube Chad Hurley, cofounder of Twitch Kevin Lin, cofounder of Xiaomi Hong Feng, and Hugo Barra – progrenator of the Metaverse vision at Facebook. We also have some great angels who've helped us along the way, Emilie Choi, President at Coinbase; Jeremy Cai CEO of Italic, Sahil Lavingia cofounder of Gumroad, Liam Casey founder and CEO of PCH International, Manik Gupta SVP of Teams and Skype at Microsoft, Matt Mullenweg cofounder and CEO of Wordpress and many more.

Launch:

- Our public launch is happening on December 14, at 12pm PST
- After this time, users will be able to purchase an Opal, with an Invite code
- The Opal C1 camera is complete, the software is in Beta

Mission:

Build the best camera for remote work

Product Offerings:

- Opal C1 – Market's first professional webcam
- Opalsoft Beta – Software to help make you look better using machine learning

Leadership:

- Cofounder & CEO: Veeraj Chugh
  Heads up Hardware, with a background from Jump, Uber, and Google.
- Cofounder & President: Stefan Sohlstrom
  Leads Software. A designer and product manager who's worked at Plaid, Otto, and Uber Freight.
- Head of Design: Kenny Sweet
  Industrial designer who's built products for Beats, Google, and many more beloved brands.

Team:

- Our team is filled with the designers and engineers behind some of the most beloved products ever built. We've worked on products like the iMac, Beats headphones, Google wearable products – like the Earbuds, Jump Bikes, and Magic Leap.

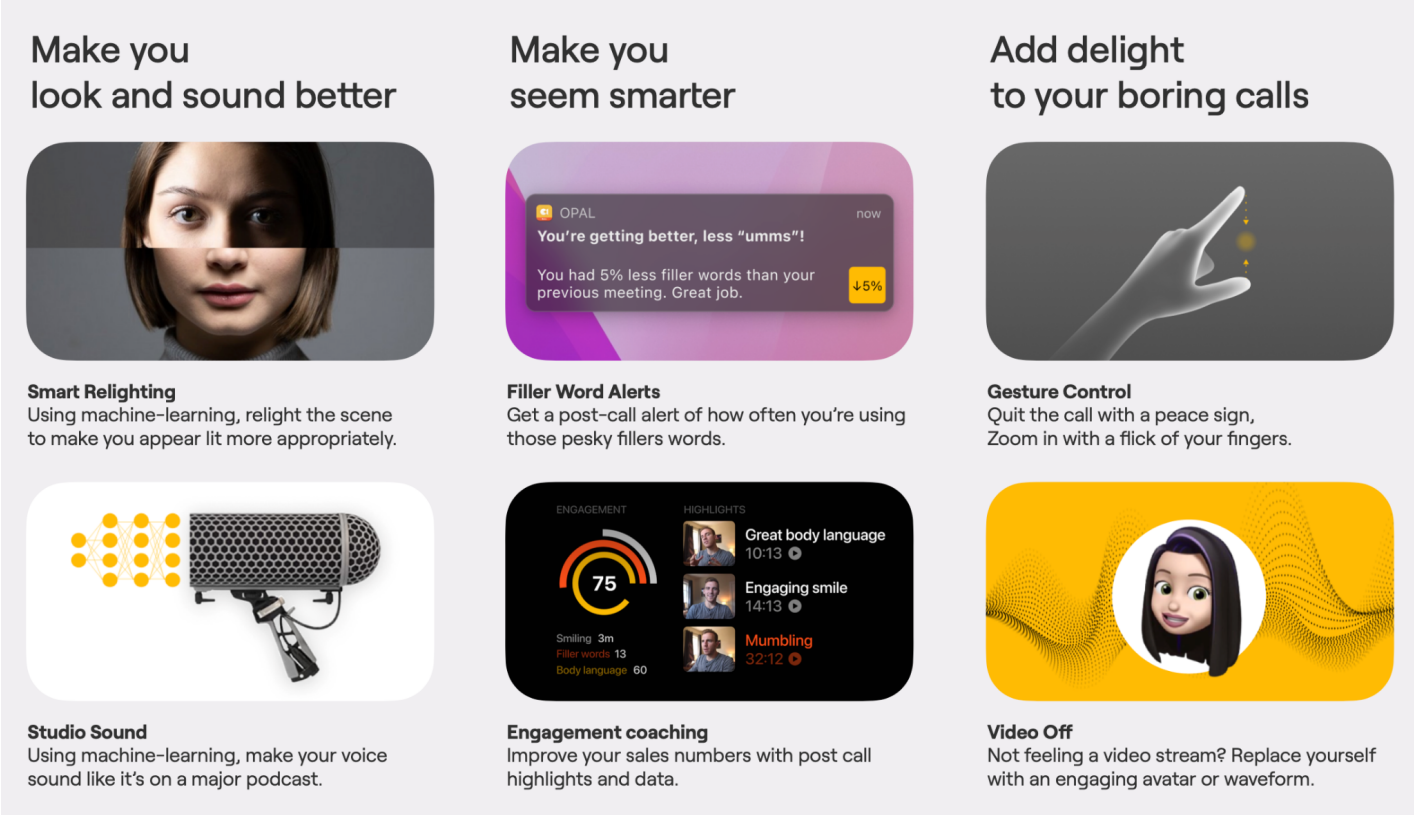
Features:

- 4k Image – An image sharper than anything else on the market
- MicMesh – A collection of mics that filter out background noise and improve clarity.
- Bokeh – Lifelike depth of field effect, makes your video look like its shot on a high quality DSLR.
- FaceLock – Using machine learning to Zoom in on your face and follow you as you move
- Manual controls – Control your camera like a DSLR to improve your overall look and feel
- Gesture control – Control your camera with gestures. Pinch to zoom, peace to stop video.

Software Roadmap

- Level up your audio: We're focusing on building the markets leading Noise Cancellation, and using the same learnings to build something we call Studio Sound. Studio sound allows you to sound like you're on a professional podcast, without the $500 boom mic. Using MicMesh inputs piped through a neural net, we'll be able to make your sound professional quality.
- Get better at calls: See and reduce the number of filler words, make more eye contact, and in general be a more engaging speaker and listener. We're building tools that allow you to review how your call went and what could be improved.

- Make a little magic: We've built a system of gesture recognition on camera, now we will be using it to allow users to control their calls with a flick of the wrist. Imagine going on mute with a swipe, ending a call with a peace sign.



Hardware roadmap

- In the near term, we're focused on making the production as scalable for large quantities as we can: reducing the tolerances, stabilizing supply chain, and improving polish.
- We'll also be releasing new accessories for use with the camera.
- In the long term, we have a few technologies in research and development that we're planning to integrate into future devices. Tech like time of flight, spacial audio recording, new sensor technology, and further increasing the processing power that can be handled on camera.

Industrial Design:

- Opinionated – We built an object that can live in the most beautiful desktop setups in the world, and bring a new perspective to the conversation when it comes to the shape of the tools we use each day.

- Brandless – We've intentionally dialed back branding and logos from the face of the product. At the end, this is your device, and we'd like to make you the focus, not Opal.
- Sustainability – We wanted to build Opal not as more plastic fodder for landfills but something that can have a long lifespan, and be recycled at end of life. The packaging is 100% recyclable, with none of the polyurethanes typically used in boxes. And the camera is less than 1% plastic, with most of the device being fully recyclable.

Who are your target users?
We're building Opal for anyone who's primary connection to their job – their team, their employees, their customers – is through video calls. We want to make it easy for everyone to have a professional setup, with a single plug and play system.

When did you start Opal?
We started Opal in December of last year. We began the hardware program in January of 2021. And the Software in March of 2021.

Why did you start Opal?
A few reasons for us:

- Like many people, the pandemic struck and we were stuck on video calls for hours a day. We then had a lightbulb moment – we realized that we now spend more time in front of webcams than we do on our iPhones. And current webcams make us look and sound terrible.
- We think remote is here to stay, and there are no brands out there making great, lovable products for remote workers. When you start your day in your home office, you should feel empowered, not disenchanted.
- Webcams were very much built in a time when they weren't one of the most used products in peoples lives. We are interested in the question – "what if webcams were built today, how would they work?" There are a lot of interesting answers there, and we're excited to build out that future.

When are C1 units shipping to customers?
Units start shipping to the public on December 14th. Customers on the waitlist can purchase the camera with an invite. We're slowly rolling out to ensure the customer experience exceeds expectations – once we cross a positive threshold there, we will roll out in quantities in the tens of thousands.

Have people been using the camera?
Yes, folks have been testing for a few months now. We started with a group who we thought would be the hardest users to please: the investors and execs on our cap table

who are on video calls, TV appearances, and thousand people all-hands meetings every day.

Who are your biggest competitors?
We think that our biggest competition is actually at the top of the market: in DSLRs that cost multiple thousands of dollars and are fussy to set up and mount. Our goal is to give customers 90% of that quality for 10% of the cost, if we can fulfill that promise, we think people will love and use their Opals everyday – and hopefully tell their friends.

Existing incumbents, the Logitechs and Apples of the world, have had years to build out their webcam product, but the change brought by the pandemic snuck up on them. Now they are stuck, strategically or structurally with what we think are not great products.

What's next for Opal?
The first year was about building the best webcam on the market, the next year we'll focus on making the software experience magical. Giving people the bar-none best look and sound on their calls is our first step. Next we'll look to use machine learning to make the experience of video calling better.

What does the software do?
Out of the box, Opalsoft helps you look and sound better on your call. We use state of the art machine learning and computer vision to improve your overall image and help you to sound better. The camera has an onboard Neural Processing Unit that runs 4 trillion tensor operations a second – the software uses this processing to make the camera experience delightful.
Users so far have likened it to a compact mirror: a space to check yourself, and improve your overall look before diving into a meeting.

Have supply chain issues factored into your business?
We were lucky to actually start the business in the pandemic, and we've designed our supply chain from the ground up for resilience in the face of shortage and long lead time. Everything from the number of components inside the device (1/10 of a smart phone), to the parts we use (principally: off the shelf whenever possible), even to the way we ship (designed for air freight), insulates us from some of the challenges traditional businesses are running into.

What does your onboard ML/CV actually do? How do those technologies manifest themselves for users?
The neural nets we are running become steps in a longer pipeline used within features on the device. For example
Bokeh – for our Bokeh effect, we start with a neural network guessing the segmentation between the foreground and background, which kicks off a proprietary set of filters that

tune the segment, and a graphic rendering pipeline that actually models the physics of how light enters a lens through a hexagonal lens – all to make a Bokeh effect that is far more convincing than anything else out there. Each of these steps, we're doing 30 times a second.

Where do I turn on 4k?
We've temporarily disabled 4k video, as it is not compatible with most video conferencing apps, and it was giving users a hard time.
We are relaunching shortly with a stronger warning, and will be available for applications that do support, for recording videos and the like.

The camera seems hot, what's going on there?
The camera does get hot, sometimes up to an internal temperature of 50 degrees celsius. Today this is caused by the software running each neural net, and downscaling the image from 4k to 1080 at 30 frames per second.

We're actively reducing the heat. Recently we reduced the standing temperature by 15º centigrade, we believe we can make similar gains when the camera is running.

What's the plan for Windows users?
We are launching to Mac users for the time being, as we wanted to keep the footprint small while we work to polish the experience. Later next year, we plan on building out support for Windows machines.