büng

Matt Visco, Carson Schultz,
Claire Tuna, Justin Kay

Mission Statement:

Our mission is to build a bung that helps wineries and micro-distilleries cut away the inefficiencies in measuring barrel volume and to give more data about these barrels which will help improve their products.

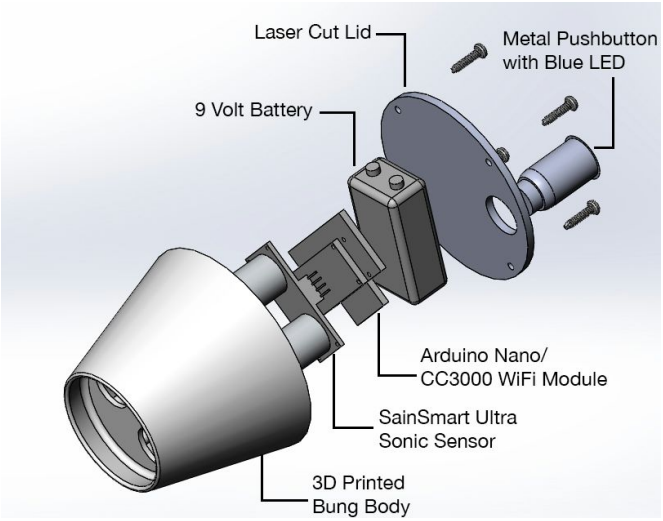
Price:

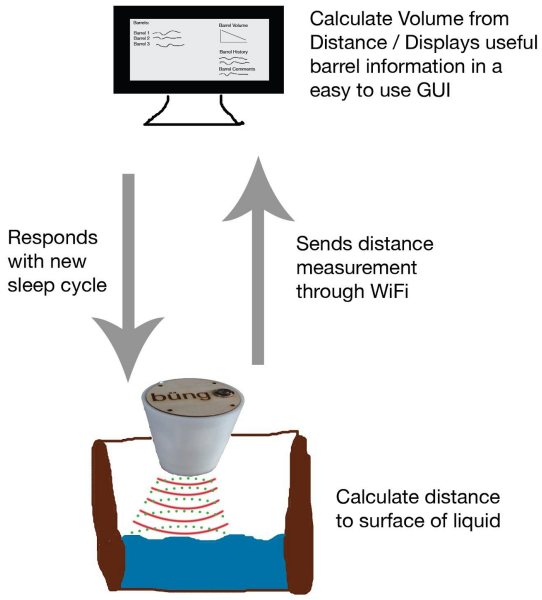
Silicon bungs are priced at about $2; however our bung provides significantly more functionality. It saves 20 hours a month of labor at $20 an hour which is a savings of $4800 a year. This means that our product will save them money in five years in addition to improving the quality of wine/spirit if it is priced at $30.

Cost:

From our calculations, the büng will cost $20.01 to manufacture.

How the Product Works:





büng is equipped with an ultrasonic depth sensor that measures the distance from the top of the barrel to the surface of the liquid. Once the measurement is taken it sends the data over wifi to a web server, where we track measurements over time for each barrel. The büng then enters sleep mode to conserve battery life and will not wake up until the next sync time or until a user resets it manually by pressing the button on top of the büng.

On the server side the depth measurement gets converted into volume and is added to the history of the barrel associated with the syncing büng. The user can go onto our website and sign in to their account which will display all the barrels being monitored. From here they can select any barrel they choose and see the volume change over time, as well as the proof-by-gallon, the history of prior spirits in that barrel, and comments made about that barrel.

High-level description of functionality from user's perspective and the technology/implementation of your device. Show photos, diagrams.

Intended Market:

The target market is micro distilleries and small to medium sized wineries. Initially our focus will be on California but we will scale to other parts of the country.

The number of craft distilleries in the US is small, but growing quickly. According the the LA times, the number of craft distilleries in California has tripled over the last 7 years. At this point there are around 1,000 craft distilleries in the US, with the potential for substantial growth in the next 5 years. If we can sell to ¼ of these, at 700 barrels

per distillery, we can sell 175,000 units.

There are approximately 1,756 wineries in California most of which are medium size, assume we capture ¼ of the market. Each winery has around 700 barrels, this means we can sell about 307,300 units. IBIS estimates alcohol expenditure in the US is growing at about .66% and this is because consumers preferences are shifting towards premium products, as well as shifting away from beer to wine and spirits. Premium wineries need to keep up with the demand for these wines, cutting away inefficiencies is a proven way to produce more wine and improve the product.

Potential scenario

Mark Borrelli is the owner of a winery in Napa Valley, and his winery is medium sized, but growing rapidly. As the demand for his wine increases, he needs to find ways to cut costs and increase production rates. Currently, he must pay an intern $20 an hour to check the liquid level in each barrel to make sure the wine is not exposed to too much air. This takes the intern 40 hours once a month to check the barrels.

Mark discovers büng and implements it in his 700 barrels. Now, Mark no longer needs to pay the intern to check the liquid levels and utilize the intern for more useful tasks. Instead, the barrels are checked automatically once a week and the information is uploaded to Mark's computer automatically. Mark can instantly see, from the web app, which barrels he must top off to prevent too much air exposure. The quality of Mark's wine increases dramatically after implementing büng because with increased check schedule, the wines spend less time exposed to the air. Additionally, the intern's time is spent improving the taste of the wine instead of mindlessly checking barrels.

Manufacturing Product Costs:

Design

Our first prototype cost about $350, but with a generous subsidy from UC berkeley, the cost fell to $150. As a team, we spent 250 man hours on the project. At $50/hour, the total labor cost thus far has been $12500. We estimate that with 250 more hours of additional design work and an additional $1000 for prototyping, we would have a design that was ready for production. This gives us a total cost for design of $26150.

Material Cost

Silicone costs approximately $2500 per ton, so a 21 gram silicone overmold of the bung will cost around 6 cents to make. ABS plastic costs approximately $1800 per ton, so a 35 gram body for the bung will cost around 7 cents. Acrylic lids will cost less than a cent per bung. Ultrasonic sensors in bulk can be purchased for around 63 cents. Currently, wifi chips in bulk can be purchased for around $10. This is our most expensive component and hopefully we could reduce this cost in the future. Additional electrical components will bring the total cost to around $17 (see Profit Model Spreadsheet).

Tooling Cost

We plan to use injection molding with a silicon overmold to produce our product. This will be done through protomold because they can meet our demand for the first 5 years. Additionally, purchasing our own injection molding could not be justified because our production rates are far too low. We would also need to hire operators for the machine which would add to the already impractical cost.

Overhead Costs

We plan to continue to use the Invention Lab and the CITRIS Foundry as our headquarters for the first 5 years. This reduces cost while allowing us access to many resources we would not have otherwise. For the four memberships it would cost us $1000 (as long as rates do not change).

Labor costs (L)

It will take approximately 5 minutes to make the büng body, 2 minutes to make the lid, and 5 minutes to make the PCB. At $15/hr this gives us a labor cost of

$$L = 1/5 * \$15 = \$3$$

Production costs (P)

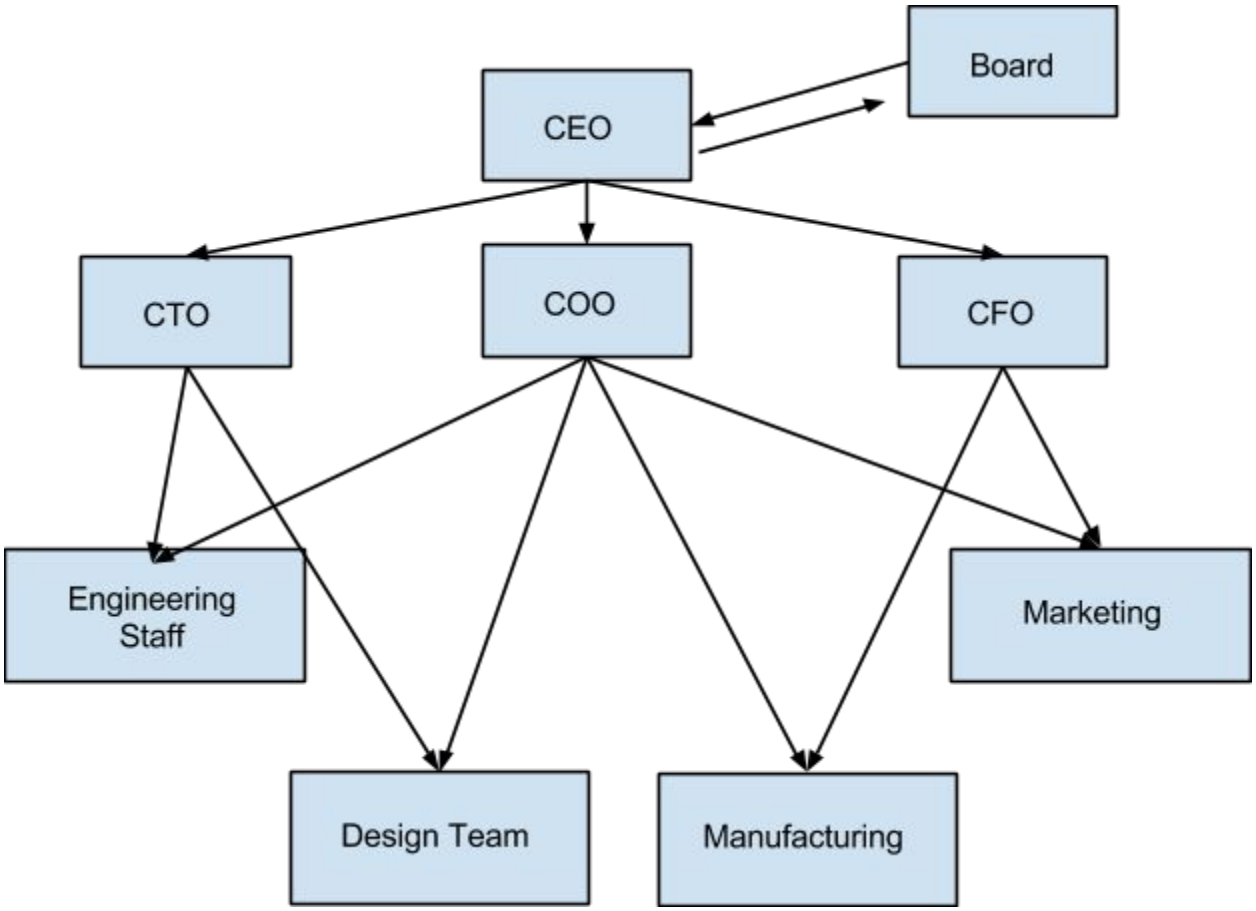
We will be outsourcing our production; therefore, production cost is $0.

Operational Costs:

For the first year or two we will only employ our 4 founders until we get our product cleaned and proven that the business model is viable. This will allow ourselves to take low salaries, i.e. just enough for food/rent and keep operational costs down. Also working out of the invention lab will give us a wide variety of equipment needed, while keeping our cost down to $1000 a year. Our marketing will be approximately 10% of net sales, which comes out to be ??????? we will also use about 8% of net sales to cover maintenance and other small fees that go into getting the business to function

smoothly.

Structure of your corporation:



Competitive Landscape:

Wineries tend to utilize humidity control systems to help minimize the volume lost due to evaporation. In addition these systems give the winemakers a ballpark estimate of when to top off their barrels. Buying our device for every barrel needs to cost around the price of these large scale systems. We also will have a competitive edge on these systems by incorporating more sensors into our büng, as well as having a unique user interface that allows wineries and distilleries to easily keep track of inventory and look through useful information about their barrels that improves the entire process.

Profit Model Spreadsheets with a single five-year "most

likely" scenario:

Year	2014	2015	2016	2017	2018
Sales Price	$30.00	$30.00	$30.00	$30.00	$30.00
Num Units Sold	140,000	140,000	140,000	140,000	140,000
Net Sales	$4,200,000.00	$4,200,000.00	$4,200,000.00	$4,200,000.00	$4,200,000.00
Cumulitive Net Sales	$4,200,000.00	$8,400,000.00	$12,600,000.00	$16,800,000.00	$21,000,000.00
Material costs					
Injection Molding tooling/setup	$1.88	$1.88	$1.88	$1.88	$1.88
Silicone Overmolding tooling/cost	$1.25	$1.25	$1.25	$1.25	$1.25
Acrylic lid laser cut	$0.01	$0.01	$0.01	$0.01	$0.01
ABS plastic	$0.07	$0.07	$0.07	$0.07	$0.07
Silicone cost	$0.06	$0.06	$0.06	$0.06	$0.06
Wifi	$10.00	$10.00	$10.00	$10.00	$10.00
Atmega Chip	$1.32	$1.32	$1.32	$1.32	$1.32
PCB	$1.50	$1.50	$1.50	$1.50	$1.50
Ultrasonic	$0.63	$0.63	$0.63	$0.63	$0.63
Button	$0.04	$0.04	$0.04	$0.04	$0.04
Battery	$0.25	$0.25	$0.25	$0.25	$0.25
Total Material Cost	$17.01	$17.01	$17.01	$17.01	$17.01
Labor by Unit	$3.00	$3.00	$3.00	$3.00	$3.00
Total Unit Cost	$20.01	$20.01	$20.01	$20.01	$20.01
Cost of Product Sold	$2,801,400.00	$2,801,400.00	$2,801,400.00	$2,801,400.00	$2,801,400.00
Gross Margin	$1,398,600.00	$5,598,600.00	$9,798,600.00	$13,998,600.00	$18,198,600.00
% Gross Margin	33.30%	66.65%	77.77%	83.33%	86.66%
Development Cost	$26,150.00	$0.00	$0.00	$0.00	$0.00

(prototyping)					
Development Cost (Excluding Prototype)	$60,000.00	$60,000.00	$30,000.00	$30,000.00	$30,000.00
Tooling Cost	$4,610.00	$13,830.00	$10,000.00	$8,000.00	$8,000.00
Overhead Cost	$500.00	$500.00	$500.00	$500.00	$500.00
Marketing	$420,000.00	$420,000.00	$420,000.00	$420,000.00	$420,000.00
Other	$336,000.00	$336,000.00	$336,000.00	$336,000.00	$336,000.00
Pretax Profit	$551,340.00	$4,768,270.00	$9,002,100.00	$13,204,100.00	$17,404,100.00
%Profit					
Cumulitive Profit	$551,340.00	$5,319,610.00	$14,321,710.00	$27,525,810.00	$44,929,910.00