



SafeCook

A smart device and platform that prevents fire accidents from cooking and learns how you cook.

Team 3

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Introduction

Cooking accidents resulting in fires are a leading cause of house fires in the United States. NFPA statistics indicated that fire from cooking activity causes an average of 550 civilian deaths, 4,820 reported civilian fire injuries, and more than \$1 billion in direct property damage per year. Electric and gas range stove top account for 61% of kitchen fires.

Common cause of cooking fire:

1. Unattended cooking: from distraction, leaving kitchen, falling asleep
2. Cooking with grease and oil: overheating and splashing of oil
3. Flammable material near the stove that can ignite: paper, plastic, kitchen towel
4. Equipment malfunction
5. Human error

References:

<https://www.nfpa.org/News-and-Research/Data-research-and-tools/US-Fire-Problem/Home-Cooking-Fires>

<https://www.usfa.fema.gov/downloads/pdf/statistics/v21i5.pdf>

<https://newsroom.statefarm.com/holiday-cooking-fire-safety-2019/>

Adults aged 65 and older are more than twice as likely to be killed or injured in a cooking fire as the general population. This is due to several factors, including decreased mobility, sensory impairments, and cognitive decline, which can make it more difficult for seniors to react quickly and safely in the event of a cooking fire. In the United States, 14 millions of people aged 65 and older live alone and potentially 50% of them have some dementia. Outside of the United States, many families are multigenerational families and elderly may be at home when working couples and kids are at work or school.

Although most homes are equipped with smoke alarms, it cannot recognize events that can lead to cooking fires. SafeCook believes that with advanced sensor technology + artificial intelligence + safety interlock, we can prevent situations that may lead to cooking fire and other food related safety.

Customer Survey

Persona research

- Who is our target customer? And who is the user?

<p>Possibility A: B2C: Middle income families that have parent(s) the live alone (actually, might not need to live alone, I think. But there can be a period where elderly can create accident)</p> <ul style="list-style-type: none"> • Customer is the family who pay for the product/service • User is the parent(s) 	<p>Possibility B: B2B: Retirement living community</p> <ul style="list-style-type: none"> • Customer is the community manager • User is the people staying there 	<p>Possibility C: B2B: Rental owner</p> <ul style="list-style-type: none"> • Customer is AirBnB owner • User is the people staying there
<p>Customer age: 10-80 User age: 65+</p>	<p>Customer age: 25-65 User age: All</p>	<p>Customer age: 25-65 User age: All</p>
<p>Gender: All</p>	<p>Gender: All</p>	<p>Gender: All</p>

From customer surveys, it is evident that potential customers are concerned about the aesthetic integration of the product to the kitchen, functionality beyond the safety interlock, ease of installation and cost.

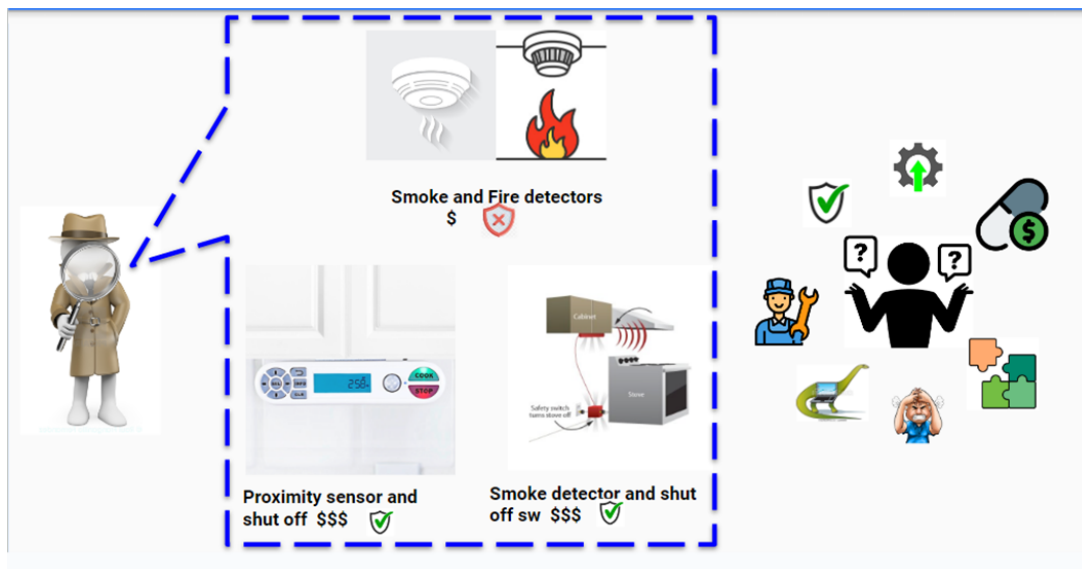
Available safety devices

The most common safety devices currently available in the market are smoke detectors. They are essential safety devices for any kitchen. Smoke detectors are relatively inexpensive and easy to install. Most smoke detectors emit a loud, audible alarm when smoke is detected, alerting everyone in the home to the potential danger.

In addition to smoke detectors, shutoff valves are another important safety device that should be installed in the kitchen. Shutoff valves can help prevent gas leaks and potential fires by automatically shutting off the gas supply to the kitchen. However these are basic and unreliable in providing early detection and warning.

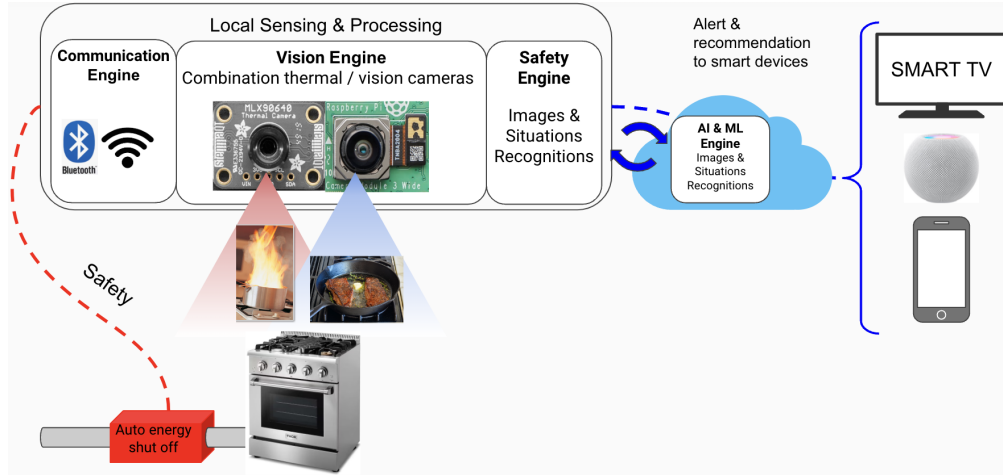
Proximity sensors are also an important safety device for the kitchen. They are designed to detect the presence of people and other objects in the kitchen and can be used to control various kitchen appliances, such as ovens and stovetops. This can be especially helpful for those who have mobility issues or who may have difficulty reaching or operating certain appliances. Proximity sensors can also help prevent accidents by automatically turning off appliances when someone gets too close, preventing burns and other injuries. In conclusion, kitchen safety is essential for any homeowner, and the installation of safety devices such as smoke detectors, shutoff valves, and proximity sensors can greatly improve the safety of a kitchen.

By investing in these safety devices, we see that all of these sensors are basic and old tech, this leaves much to be desired in terms of upgradability, communication and smart capability. This creates the correct opportunity to provide a differentiated and smart solution.



SafeCook Approach

Unlike other devices in the market, our approach is based on the combination of thermal and vision cameras to detect conditions on the stove that can result in fire hazard. It can communicate with energy shut off devices as well as alert users for potential hazards. Because of the unique combination of thermal and vision imaging, SafeCook will be able to determine how a food is cooked as well. SafeCook can recognize that food has turned brown before it burns and starts to smoke, overflowing food from a pot, or a pan that is left on the stove unattended and getting too hot. SafeCook has several warning levels adapted to the situations.



- Safety features





- Power source shut off (Gas or Electric)
- Alert via connected devices, e.g. smart TV, phone, speaker
- Exit home alert (Wifi range) if forgot to turn off before leaving home
- Alert of possible flammable materials near the stove that can catch fire
- Detect oil or food that start smoking before catching fire → when oil reaches smoking point and harmful chemicals are also being released. It is best to avoid reaching the smoke point
- Food overflow detection

- Convenient features

- Know your cooking temperature precisely
 - Best temperature for searing steak 400-450F (204-232C)
 - Making sauce, soup, stew in medium heat 300-375F (149-191C)
 - Making half boil egg with running egg yolk at 146F
- Monitor your food
 - Just right caramelization
 - Perfect golden fried food
 - Prevent over-reduction of sauce
 - Shimmering of oil at 400F for perfect pan sear fish
- Broadcast features
- Recreate the dish features

Competitors/Current Players

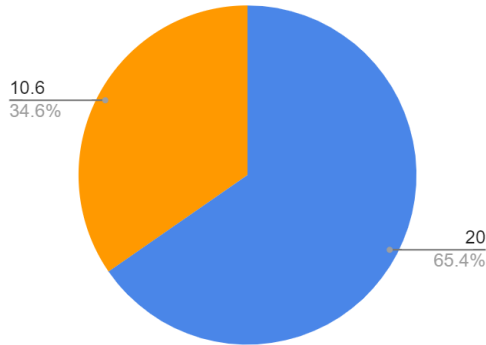
There aren't many products with comparable features on the market. However, as we mentioned, there is a significant distinction between the items. The current products only keep track of stove heat or prolonged periods of inactivity to alert consumers and turn off the energy sources. In contrast to such solutions, Safecook offers a comprehensive solution with intelligent methods utilizing multimodal inputs, thermal and video, with an AI & ML engine.

	SafeCook SafeCook	iGuardStove® Cooktop Monitor	iGuardStove® Gas Range Monitor	 Stove Guard
Sensor Input	Vision Engine (Thermal+Camera)	Motion (1-15min)	Motion (1-15min)	Heat
Price	\$299/399	\$499	\$575	£359.99
IoT standard integration		No	No	No
Automatic Shut-off	Electric and Gas	Electric cooktops only	Gas cooktops only	Possible option
Automatic Monitor and Mobile App Integration		No integration (proprietary WiFi)	No integration (proprietary WiFi)	No
Smart Home Compatible		No	No	No

SafeCook plans to prepare for future market expansion by implementing products that meet many existing standards. First, it provides IoT standard integration, providing compatibility with other devices that satisfy the standard. This makes it easy to expand to other devices that are compatible with the devices SafeCook offers, allowing it to expand from a device centric to service center market in the future. In addition, it is compatible with and can be shared with existing smart home systems, and promotes ease of use by providing applications to iPhone and Android phones.

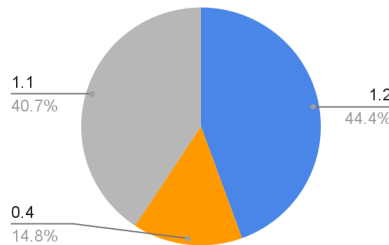
Business Opportunity

TAM: \$30.6B



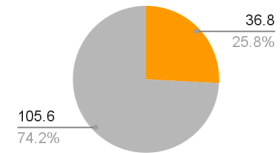
Owner homes w/ Cooking App.
Rental homes w/ Cooking App.

SAM: \$2.7B



Rental homes w/ Cooking App. - AirBNB
Owner homes w/ Cooking App. & Senior
Rental homes w/ Cooking App. - Apt. Complex

SOM: \$142.6M



There are ~127M housing units (Owner homes: 83M, Renter homes: 44M) in USA. Roughly ~80% of them are with cooking appliances. With \$300/ea product ASP assumption, it makes TAM ~\$30.6B.

With further market analysis, we believe SafeCook will bring the most value to owner homes with seniors + certain types of rental properties where the owners care about safety the most, including renter homes under major apartment complex (~10% of total rentals) and AirBnB houses (~2.3M total listing in USA). That totals the SAM ~\$2.7B.

In early stage of the company, we would like to prioritize and focus solely on rental properties business first with 10% penetration rate as target, it translates into SOM of \$142.6M.

Go-to-Market Strategy

To meet revenue targets in the short term under very limited resources, we chose to reach homeowners through large rental apartment complexes and AirBnB, as our first stage customers. SafeCook’s value to those customers include:

1. Improve corporate/ community image on Safety. It helps attract more owners for the Apartment Complex or more rentals for AirBnB.
2. Reduce fire incident rate and protect residents in the community and AirBnB owners’ properties.
3. Potentially reduce customers’ overall insurance cost

Target Customer	Strategy	Channels & Partners
<p>Large Apartment Complex Residents</p>	<ul style="list-style-type: none"> ▪ Negotiate for high level endorsement 	
<p>AirBnB Rental Owner</p>	<ul style="list-style-type: none"> ▪ Run adv. on AirBnB ▪ Safety Feature Listing ▪ Listing fee reduction 	

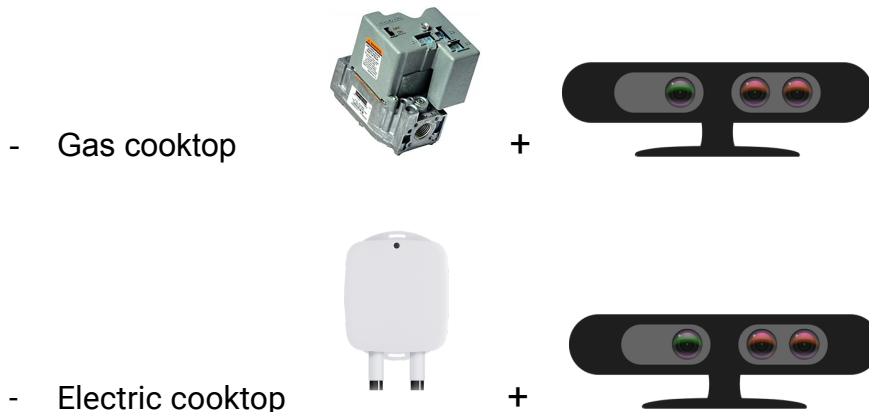
Through negotiation with top property management companies and AirBnB, we believe we can get their endorsement and influence to significantly increase homeowners’ adoption on SafeCook products.

Business Model

SafeCook's business model is similar to Nest or Ring smart home products. Customers purchase one of the SafeCook devices for gas cooktop or electric cooktop. The apps are free to use. Paid subscription is available (in phase 2) with more features and benefits.

Phase 1

SafeCook Devices:



SafeCook Apps:

Free companion apps on three major platforms: web, Android and iOS apps.

Phase 2

In phase 2, We introduce SafeCook Plus subscription to create a new revenue stream.

- Analytic: SafeCook can track energy and gas usage. Give you an insight into how much energy you use for cooking.
- Convenience: Feature to help users cook food to exact temperatures such as searing steak, cooking half boiled egg.
- Feed safety: Food safety hazard warning.
- Lifetime warranty: Extend 1-year product warranty to a lifetime warranty.
- Free trial for 1 month. After that \$9.99/month or \$100/year

Phase 3

SafeCook platform. Build an ecosystem. Support third party devices and platform integrations. And focus more on data collection for AI/ML and targeting.

Market Expansion

SafeCook starts with a consumer product, then a platform, but we also have a great opportunity on the B2B sides.

- For Home insurance: SafeCook prevents fire accidents. Reduce the number of claims. Home insurance can pass on this saving to SafeCook device Owners by Reducing the home insurance cost or subsidize the cost of the SafeCook device.



- For Supermarkets and grocery stores: We know how the food is cooked and what items are used for cooking. This data can be sold to supermarketing for targeting.

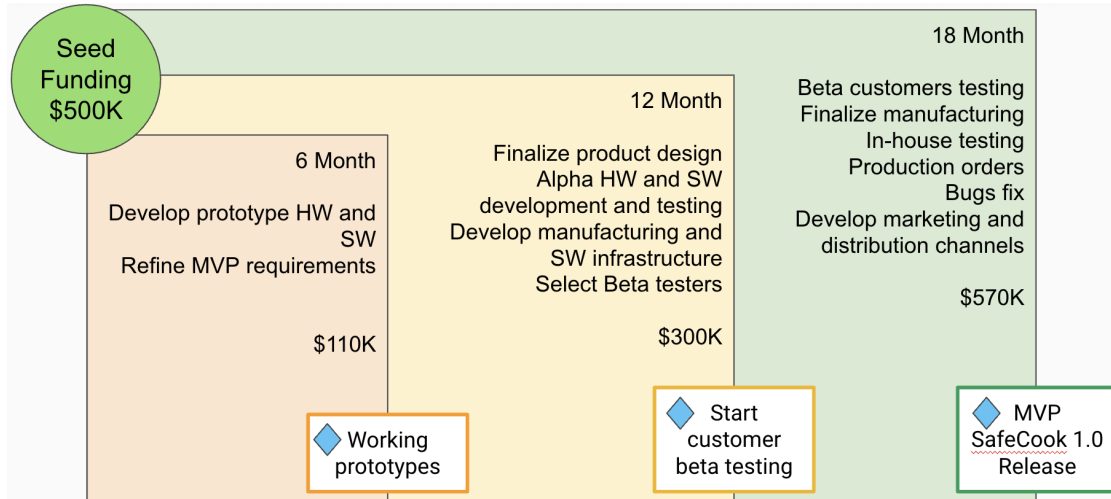


- For kitchen appliances and home builders: we can work with them to provide an integrated SafeCook experience out of the box or built-in to the home.



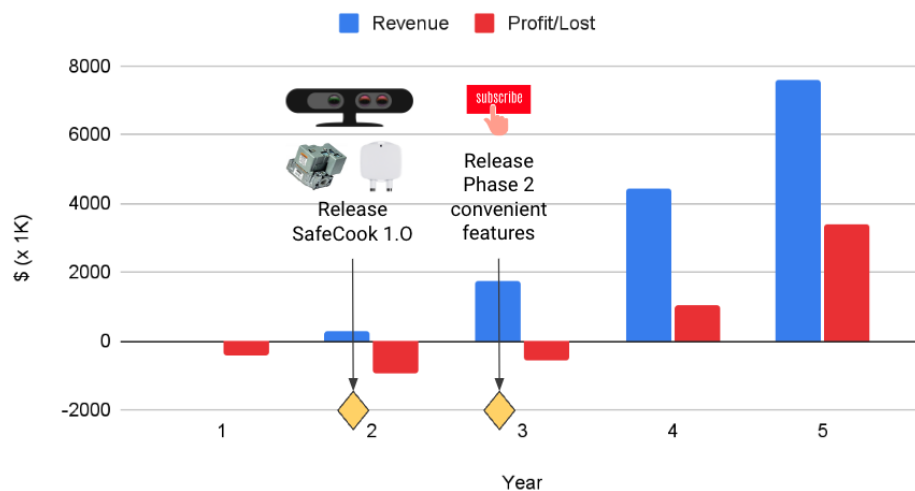
Financial and Release Roadmap

SafeCook's roadmap is to get to beta testing by the end of 1st year and finalize manufacturing and gather beta user testing during 1st half of 2nd year.



Within the 1st year, we plan to use overseas SW development resources (1 for the first half and 2 for the 2nd half) to minimize personnel costs in developing SW and its infrastructure. Similarly, we plan to use a freelancing platform such as Upwork to minimize product design personnel costs (estimate from similar past projects). Prototype development cost is estimated to <\$30K for 8-10 prototypes based on commercially available development boards and components. In production, the material cost is estimated to reduce as volume increases due to volume discount. Fulfillment and logistics cost is estimated from Amazon fulfillment service.

SafeCook Projections



		Phase 1 Launch	Phase 2 Launch		Phase 3 Launch
	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue & Gross Profit					
# of Unit Sold	0	1000	5000	12000	20000
Price per Unit	0	300	300	300	300
# of Subscription	0	0	2500	8400	16000
Subscription price per unit	0	0	100	100	100
REVENUE	0	300000	1750000	4440000	7600000
Material cost	0	90	75	60	60
Manufacturing cost	0	60	60	60	45
Fulfillment and logistic	0	5	5	5	5
COGS	0	155000	700000	1500000	2200000
GROSS PROFIT	0	145000	1050000	2940000	5400000
GROSS MARGIN	0	48.3%	60.0%	66.2%	71.1%
Fixed Costs					
Founders Salary	100000	100000	270000	270000	270000
Operations Salary - 1.5 SW eng for YR1, 5 for YR2 onwards	75000	250000	250000	250000	250000
Sales Salary	0	45000	90000	180000	180000
Personnel Costs	175000	395000	610000	700000	700000
Development	60000	120000	30000	33000	36300
General & Admin (G&A) - \$200K/yr, grow by 10%/yr	0	100000	210000	231000	254100
Sales & Marketing - \$100K/yr, grow by 50%/yr	0	100000	150000	225000	337500
FIXED COSTS	410000	1110000	1610000	1889000	2027900
NET PROFIT	-410000	-965000	-560000	1051000	3372100