

Social Robotics, Inc.
Business Plan

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Business Plan

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Executive Summary

Company Description

Social Robot is a startup company. The company was formed to create and commercialize social robots. Robin Bob, Jon Blue and Sharon Strong, who are experienced, knowledgeable and accomplished professionals, founded the company in 2014. The founders plan to position the company as a prime producer of autonomous robots for seniors living independently and individuals managing chronic conditions.

Technology Solution

In its early stage of development, Herb is an autonomous robot being developed to support seniors, living alone, with everyday tasks such as taking medications, returning phone calls, retrieving objects. Moreover, Herb will be used to detect falls and relay that information, immediately, to healthcare professionals via telemonitoring.

Market Analysis

The targeted patient population is the roughly 28% (11.8 million) of noninstitutionalized seniors living alone (8.4 million women, 3.5 million men).

Living Arrangements for Older Adults in the United States (% of the U.S. Population)

<u>Age</u>	<u>Private Home Alone</u>	<u>Private Home With Spouse</u>	<u>Private Home With Other Relative</u>	<u>Long-Term Care (Institutional Living)</u>
65-74	21.9	63.0	10.9	1.3
75 -84	31.2	48.2	13.4	3.8
85+	38.7	27.3	23.0	15.4

Sources: Pew Research Center, U.S. Census and United States Department of Health and Human Services Administration on Aging

The smart robot market size for domestic application is projected to reach USD 2.17 Billion by 2020. **Source:** MarketsandMarkets.

The global market for elder-care technology products was valued at \$2.7 billion in 2012 and it is projected to reach nearly \$7.2 billion by 2018, and register a compound annual growth rate (CAGR) of 17.7%.

Major market players include AB Electrolux (Sweden), Touch bionics Ltd (U.K), iRobot Corporation (U.S), Samsung Techwin Co. Ltd. (South Korea), Robert Bosch GmbH (Germany), Mako Surgical Corporation (U.S), Intuitive Surgical Inc. (U.S), Honda Motors Co. Ltd. (Japan), Panasonic Corporation.

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Intellectual Property

To secure intellectual property rights, the company's attorney filed a provisional patent with the United States Patent and Trademark Office.

Regulatory

Depending on the application, the technology falls under U.S. Food and Drug Administration's (FDA) regulatory powers. For example, Paro, a therapeutic robot that looks like a baby seal and is meant to have a calming effect, and used on patients with dementia and Alzheimer's, was certified by the FDA for use in the home by individuals, receiving a Class II exempt pre-marketing notification in 2009.

Market Strategy

- Targeted Buyers

Adult family caregivers, e.g., women, are the primary targeted buyers of smart robots for seniors living alone. The caregivers' characteristics:

- 43.5 million of adult family caregivers care for someone 50+ years of age and 14.9 million care for someone who has Alzheimer's disease or other dementia.
- Fifty percent of family caregivers are adult children looking after an aging mother. While 54% of family caregivers have not hired a home health aide (or other professional home care provider) for their loved one, men are more likely than women to seek outside assistance with caregiving duties.
- An overwhelming percentage of caregivers are women—91% of adult child caregivers are daughters, while wives constitute 76% of the spousal caregiver population. Also, more than 50% of care receivers are either mothers or wives.

- Value Proposition

The value proposition centers on saving customers money while providing security, comfort and companionship for their love ones.

- Direct Sales

The technology is being offered through direct sales to target buyers from the company's website.

Management

The company's management team has worked in the robotics industry for a combined 25 years.

Financing

Initial funding came from the founding members. Revenues are generated from product sales and monthly subscriptions. Operating expenses include general administrative, research & development, taxes and service contracting. The company anticipates securing R&D seed capital from the Small Business Innovation Research (SBIR) program and private sector growth capital.

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Company Description

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Identified Healthcare Problem: Elderly Isolation and Care

U.S. Census indicated that the number of people 65 and older in the United States is expected to increase to 55 million in 2020; to some 70 million by 2030, and to 88.5 million — or 20 percent of the population — in 2050. According to an AARP 2014 survey, 87 percent of adults age 65+ want to stay in their current home and community as they age. Among people age 50 to 64, 71 percent of people want to age in place. With the help of medical devices, technology, and assistance from other people, this growing segment of the American population is already proving that they can retain some level of independence.

Although many older people express a desire to stay in the familiar social environment of their own home, many cannot do so due to impairments, immobility and social isolation. In addition, older people who live at home are at high risk of falls and injuries and report difficulty accessing health care services when they need them. More than 62% of Americans over 65 who suffer from multiple chronic conditions may require managing multiple complex self-care tasks including medications. Finally, they are more likely to suffer from poor health and experience depression, especially women aged 85 and over.

While in-home caregiving is viewed as the dominate answer for helping seniors age in place, there are two significant short-comings: (1) monthly costs, ranging from \$3,000 to \$6,000, places a heavy burden on family financials and (2) shortage of caregivers or low-paid home aide workers are seriously impacting the in-home caregiving solution.

Technology Concept

Social robotics is an attractive, potentially feasible technology solution. A social robot is an autonomous robot that interacts and communicates with humans or other autonomous physical agents by following social behaviors and rules attached to its role. Robots have been shown to make interaction with seniors interesting, engaging and personalized. Robots also offer a unique opportunity to add an interpersonal element to inform, empower and support older users, serve as an extension of the remote caregiver through tele-presence and leverage formation of an affective or social relationship.

Company's Technology Solution

In its early stage of development, Herb is an autonomous robot being developed to support seniors, living alone, with everyday tasks such as taking medications, returning phone calls, retrieving objects. Moreover, Herb will be used to detect falls and relay that information, immediately, to healthcare professionals via telemonitoring.

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Existing Competing Technologies

Pepper: The latest creation from Aldebaran, Pepper is the first humanoid robot designed to live with humans. Pepper will be the first robot in the world that will be able to read and respond to human emotion through its patented emotion recognition technology that was developed by Softbank. Through this technology Pepper is able to read customer's facial expressions and listen to their tone of voice to analyze how people are feeling and to guide them in the right direction through the purchase funnel.

Paro: The robotic device called Paro that was developed by a Japanese inventor to serve as a mechanical pet for elderly nursing home residents. Designed to resemble a cute baby harp seal, Paro is an early entry in a new wave of interactive or "socially assistive" robots that university researchers and tech companies are developing for people with special needs, such as seniors with dementia, children with autism and adults who have suffered strokes or other conditions.

Telepresence Robots: Giraff and VGo allow robots to act as "avatars" for nursing home residents and caregivers to interact with people over long distances by conveying the sense of personal presence. Combined with telephony and long-range remote control, telepresence devices permit nursing home caregivers to monitor residents and staff members and even attend conferences in other countries.

Market Research & Analysis

Targeted Patient Population

The targeted patient population is the roughly 28% (11.8 million) of noninstitutionalized seniors living alone (8.4 million women, 3.5 million men).

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Social Robot Industry Market Profile

- Size

Smart robots used in personal services consist of domestic application, entertainment, and others, such as elderly assistance and home security. The smart robot market size for domestic application is projected to reach USD 2.17 Billion by 2020. **Source:** MarketsandMarkets.

- Leading Industry Leaders

Major market players include AB Electrolux (Sweden), Touch bionics Ltd (U.K), iRobot Corporation (U.S), Samsung Techwin Co. Ltd. (South Korea), Robert Bosch GmbH (Germany), Mako Surgical Corporation (U.S), Intuitive surgical Inc.(U.S), Honda Motors Co. Ltd. (Japan), Panasonic Corporation (Japan), Dyson Ltd. (U.K), DeLaval (Sweden), Lely (The Netherlands), KUKA AG (Germany), Amazon (U.S.), Kongsberg Maritime (Norway), and Google Inc. (U.S.)

- Industry Conditions, Trends and Forecast

The significant drivers contributing to the growth of the smart robots market include increasing demand from the healthcare sector, adoption of smart robots by the e-commerce giants, the growing domestic service segment, and the growth of elderly assistance robots. However, the slow rate of commercialization and high cost incurred in research and development are the key factors that are restraining the growth of the market.

Marketing Program

The company's marketing program seeks to maximize resources, time and efforts in order to attract new clients, retain existing clients, generate consistent revenues and gain market share. Therefore, the company's marketing program includes a sound price structure, a unique competitive advantage, a proactive promotional strategy, and a reliable, efficient service delivery process.

Technology Solution

In its early stage of development, Herb is an autonomous robot, the company's technology solution, being developed to support seniors with everyday tasks such as taking medications, returning phone calls, retrieving objects. Moreover, Herb will be used to detect falls and relay that information, immediately, to healthcare professionals via telemonitoring.

Targeted Technology Buyers

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- Fifty percent of family caregivers are adult children looking after an aging mother. While 54% of family caregivers have not hired a home health aide (or other professional home care provider) for their loved one, men are more likely than women to seek outside assistance with caregiving duties.
- The vast majority of adult children spend between \$0 and \$500 of their own money on their parent's care, each month. Approximately 55% of spousal caregivers report monthly care expenses in that range as well, though more than 20% say they spend between \$500 and \$1,500 per month on their partner's care.
- An overwhelming percentage of caregivers are women—91% of adult child caregivers are daughters, while wives constitute 76% of the spousal caregiver population. Also, more than 50% of care receivers are either mothers or wives.

Primary Client Profile

- 49-year-old female, currently caring for a 69-year-old female relative who needs care because of a long-term physical condition
- She has been providing care for 4 years on average, spending 24.4 hours a week (68 percent help 20 hours or less; 32 percent help 21 hours or more). She is the primary, unpaid care provider and provides care without the assistance of paid help.
- She is typically employed and working full time (an average of 34.7 hours per week). This caregiver is likely married or living with a partner, and in very good or good health. She is a high school graduate or has taken some college courses, but does not have a degree. Her average household income is \$54,700.

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Value Proposition

The value proposition centers on saving customers money while providing security, comfort and companionship for their love ones.

Price Structure

Herb sells for \$1,100 dollars, which is \$500 below the industry leading product. In addition there is a monthly subscription fee of \$200 for Internet service, updates, maintenance, bio-monitoring, telehealth connection with healthcare providers.

Regulatory Requirement

Depending on the application, the technology falls under U.S. Food and Drug Administration's (FDA) regulatory powers. For example, Paro, a therapeutic robot that looks like a baby seal and is meant to have a calming effect, and used on patients with dementia and Alzheimer's, was certified by the FDA for use in the home by individuals, receiving a Class II exempt pre-marketing notification in 2009.

Sales Strategy

A direct to consumer, e.g., technology purchased by adult family caregivers, sales approach will be implemented. Customers will be able to order the product from the company's website.

Distribution Strategy

Customers will be able to order the product from the company's website. Then, the social robot will be delivered, from the manufacturer, to the caregiver with printed instructions on how operate the technology. A call help service will be available to answer questions from customers.

Competitive Advantage

The competitive advantage is the company's skilled, experienced personnel with past accomplishments working within the robotics industry. In addition, Herb's interactive monitoring system alerts remote health professionals and caregivers when the senior resident falls or encounters related health emergencies.

Barriers to Entry

The barrier to entry is very low. However, the industry is at a nascent stage where it is hard for startups to gain notoriety, stimulate potential consumer interest or generate consistent revenues without a unique technology solution that solves an identified healthcare problem, like Herb. Also, the slow rate of commercialization and high cost incurred in research and development are the key factors that are restraining the growth of the market.

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Promotional Activities

The company's promotional efforts are centered on educating and informing caregivers and physicians, who play a significant role in influencing caregivers, about the benefits of using social robotics for elderly care. The promotional effort will include the following activities:

- 1) **Advertising**- Placing informational ads in the *Today's Caregiver Magazine*, and *Caregiver Solutions Magazine*,
- 2) **Direct Mail**- Mailing product promotional brochures to members of the American Academy of Family Physicians and American College of Physicians.
- 3) **Sponsorships**- Sponsoring a workshop at the American Academy of Family Physicians and the American College of Physicians annual conferences.
- 4) **Trade Shows**- Hosting and staffing a product information booth at the American Academy of Family Physicians and the American College of Physicians annual conferences. Also, the company will participate as an exhibitor at identified state, regional and national Senior Living and Assisted Living conferences and events.

Management Team & Organizational Structure

Management Team

Chief Executive Officer & President	Robin Bob
Vice President Of Operations	Jon Blue
Vice- President & Chief Scientific Officer	Sharon Strong

Robin Bob

Ms. Bob earned a B.S. in mechanical engineering and a M.S. in Mechanical Engineering from the University of Michigan, and a MBA from Ohio State University. She is interested in building robotic systems that are capable of safe, complex collaboration with humans who may not have programming or robotics expertise.

Jon Blue

He has over 17 years of embedded systems, software, and hardware design and development experience, and has been active in relevant standards working groups. Mr. Blue holds a BS in Mechanical Engineering from American University. His work has included designing and developing new socially assistive robots to improve therapeutic outcomes in young children with autism spectrum disorder (ASD). He has worked for two startups in the greater Boston, MA area.

Sharon Strong

She received a BS and a MS in Computer Science from North Carolina State University and an MBA from Duke University. She has modeled and developed social behaviors and coordination mechanisms for robots to assist people in joint activities. She has worked for three startup companies.

Anticipated Future Hires

The company anticipates hiring three individuals in the near future.

<u>Position Title</u>	<u>Role & Responsibility</u>
Senior Software Engineer	Developing functional and technical requirements with an engineering and biomechanics team and interpret these into system specifications and prototypes.
Marketing & Business Development	Working on public relations, marketing initiatives, and client recruitment activities.
Administrative Assistant	Providing administrative assistance to the professional staff.

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Financials

Expense Structure

The company's operating expenses include salaries with benefits, office space, taxes, office equipment, information technology services, travel, promotions, office utilities, and professional services.

Revenue Structure

Revenue model consist of generating \$1,100 from product purchase and \$200 monthly subscription service that includes bio-monitoring, telehealth, and fall alter monitoring.

The company uses, on occasion, the National Science Foundation (NSF) and the National Institutes of Health (NIH) Small Business Innovation Research (SBIR) programs grants to generate revenue and conduct R&D for new technology development.

Current Company Shareholders

<u>Stock Type</u>	<u>Share Authorized</u>	<u>Share Issued</u>
Common	20,000,000	1,500,000
Preferred	2,000,000	

Current Shareholders:

Owner	Common Shares Granted Percentage Ownership	
Robin Bob	825,000	55%
Jon Blue	450,000	35%
Sharon Strong	150,000	10%

Investment Amount/Funding Amount Needed and Usage

The company is seeking \$1.1 million in equity capital for a 20 % ownership, which includes using buy-back as an exit strategy. The funding is needed for operating and marketing expenses over the next two years. The use of funds includes:

<u>Use of Capital Investment Funds</u>	<u>Amount</u>
Staffing (New Hires) Salaries/Benefits	\$700,000
Computer/Electronic Equipment	\$150,000
Marketing/Promotion and Product Launch	\$250,000
TOTAL	1,100,000

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Income Statement

	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Income Sources				
Direct Product Sales	\$385,000	\$385,000	715,000	770,000
Monthly Subscriptions	\$70,000	\$170,000	\$290,000	430,000
TOTAL Income	\$455,000	\$555,000	\$1,005,000	\$1,200,000
Operating Expenses				
Contracting Services	44,000	55,000	74,800	114,400
Office Lease	85,000	85,000	85,000	85,000
Utilities	5,000	5,000	5,000	5,000
Business Insurance	2,500	2,500	2,500	2,500
IT Services	3,200	3,200	3,200	3,200
Promotional	30,000	30,000	30,000	30,000
Salaries	200,000	350,000	400,000	450,000
Office Equipment	10,000	10,000	12,000	12,000
Travel	10,000	10,000	10,000	10,000
Professional Services	8,000	8,000	8,000	8,000
Taxes	14,000	193,165	221,095	222,180
TOTAL EXPENSES	\$411,700	\$751,865	\$851,595	\$942,280
LOSS		(\$196,865)		
PROFITS	\$43,300		\$153,405	\$257,720

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Revenue Model Projections

Year One

Revenue Source	Projected Sales	Price	Total Revenues
Herb (Product)	350	\$1,100	\$385,000
Monthly Subscription	350	\$200	\$70,000
Total:			\$455,000

Year Two

Revenue Source	Projected Sales	Price	Total Revenues
Herb (Product)	500	\$1,100	\$385,000
Monthly Subscription	$350^i + 500 = 850$	\$200	\$170,000
Total:			\$555,000

Year Three

Revenue Source	Projected Sales	Price	Total Revenues
Herb (Product)	650	\$1,100	715,000
Monthly Subscription	$850 + 600 = 1,450$	\$200	\$290,000
Total:			\$1,005,000

Year Four

Revenue Source	Projected Sales	Price	Total Revenues
Herb (Product)	700	\$1,100	770,000
Monthly Subscription	$700 + 1,450 = 2,150$	\$200	430,000
Total:			\$1,200,000

ⁱ Providing monthly service to from the previous year added to the new number of subscribers.