Juniors4Seniors

Platform for Connecting High School Students with Senior Citizens to Volunteer or Run Errands

Arnav Jhingran
Bryce Hackel

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DIAMOND CHALLENGE FOR HIGH SCHOOL ENTREPRENEURS

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Executive Summary

The US is an aging nation where by 2030, the number of people past retirement (> 65 yrs) will exceed the number of children (< 18 yrs) for the first time in history. Senior citizens need a helping hand running errands and may find regular chores difficult to do due to health issues, driving difficulty, and trouble understanding technology. Moreover, due to rising costs, affording full or part-time home helpers and in-home care is not possible for most seniors. A steadily growing, tech savvy, driving ready, yet untapped workforce population segment are high school students (ages 16-19 yrs). Teenagers need volunteer service hours or impromptu gigs to earn some money which they can do at much lower rates making them ideal for running errands for seniors. The *Juniors4Seniors* platform provides a smart phone application and backend that connects, in real-time, seniors requiring errands with students ready to provide the service either at low cost or as volunteer service hours. Unique features such as smart errand batching, price bidding, near real-time matching and school-based vetting make it both safe, reliable and cost effective. In a nutshell, *Juniors4Seniors* is Uber meets eBay for running senior errands by high school teenagers!

Customer Profile

The *Juniors4Seniors* platform has a 2-sided marketplace. On one side is the service providers that are the high school age teenagers and the other is the service consumers which are the senior citizens. According to US census data the largest growing demographic in the US are senior citizens (above age 65 yrs) with over 41 million seniors in 2015 and are expected to almost double to around 80 million (35%) by 2030. Europe has a slightly higher fraction (16% of total) of senior citizens compared to the US while the worldwide population of senior citizens is around 700 million in 2015 (9% of the total population).

There are around 20 million high school age teenagers (16-19 yrs) in the US and that population is expected to be 25 million by 2030. Teenagers are tech savvy, love driving or cycling/scootering around locally, want some extra money and can work for cheap. Teens above 16 yrs are also able to drive independently having better mobility and are always on their smart phones to receive errand availability notifications.

The Problem

The number of senior citizens is growing at a fast pace in the US and Europe especially as more of the baby boomer generation reaches the retirement age milestone of 65 yrs. Senior citizens of this generation are more likely to live longer than their parents (an average life expectancy of 79 yrs) and like their independence and prefer to stay in their own homes. Seniors living alone need help running frequent errands like: a) picking groceries, b) vet visit, c) picking up medication, d) dropping and picking up laundry, e) help with the computer, smart phone, or online apps, f) mailing packages, g) returning items to department stores or online shopping returns, h) walking partner, etc. Most errands are out of the house and involve another service location outside the home of the senior. Seniors living longer are more likely to have health or mobility issues that limit driving or walking and that makes doing errands even more difficult. The national average cost of errand services is $25/hr ranging from $16/hr to $35/hr. On

average, each senior citizen has around 1 to 5 hrs of errands per week which would cost on average $100 to $500 per month. Most senior citizens living off their retirement savings are cost conscious and like to manage their recurrent expenses carefully. Using local specialized errand services (dog walking, grocery delivery etc.) or smartphone ride services like Uber/Lyft are expensive for regular use.

The Solution

Seniors need errands done at a low cost but sometimes are willing to pay more when a task is needed urgently. High school students have spare time and the mobility to do errands at a low cost to earn some money.

Juniors4Seniors (*J4S*) is a software platform to algorithmically connect senior citizens looking to complete errands with high schools students looking to make some money or get volunteer service hours. It consists of a smartphone app and a backend service to enable real-time matching and price bidding. There are 6 components of the platform: i) registration portal, ii) errand catalog, iii) payment system, iv) approval portal, v) callback portal, vi) activity log.
There are also 4 main entities defined in the platform: i) *service provider* (high school student aka junior), ii) *service consumer* (senior citizen), iii) the *service type* (type of errand), iv) *service location* end points (from start location name and address to end location name and address). For example, for a grocery pick up errand, the service type is "*grocery pickup*", the service location end points are, for example, *from location*: Lucky's, 1234 Bernal Rd, San Jose, *to location*: Home, 1234 Main St., San Jose. There are two additional entities defined: i) *service provider supervisor* (this is a parent or guardian for a minor under 18 yrs or a school official) and ii) *service location manager* (e.g., this is the checkout clerk at the laundry or pharmacist at the drug store).

Platform Features:

4-way handshake: The initial 2-way handshake is between the service provider and consumer once the errand is defined as matched and then started. The consumer can then track the provider till the errand completes. For certain errands, after the errand starts, the service location manager at the POS receives an order with provider's name and returns an order number that the service providers use to pick up the order completing a 3-way handshake. For minors, after the two-or-three way handshake, the parent/guardian is also notified (4-way handshake) when an errand starts and they can track the location of the provider.
Price Bidding: Instead of a pure fixed *price per hr* model of say $10/hr, J4S, optionally, enables price bidding, that is done programmatically. The starting price and the max price that the consumer is willing to pay is given to the platform and it ups the price automatically in increments if no matching provider accepts the errand at the original suggested price. The service consumer (senior citizen) can chose a fixed price per hr or the price bidding option. The platform fees is 10% of the final accepted price. For certain errands that can count for volunteer service hours the provider can choose to accept it as service hrs and will not be paid. In that case the platform fees is fixed to $0.99 for the errand. The platform automatically notifies the school or community service for completed service hours.

Privacy with Callback Verification: For certain errands where personal information is required (like a pharmacy pickup requires a date of birth) the service location manager can callback through the platform to get the personal information directly from the service consumer. This eliminates the liability of sharing personal information with the service provider.
Location Tracking: Once the errand starts the service consumer can track the location of the service provider till the errand completes. For minors location is trackable by parent/guardian.
Feedback Rating: Both providers and consumers can rate each other and also provide feedback on the errand time estimate and difficulty. 3 levels of rating or no rating along with comments are enabled. Missed/incomplete jobs that were accepted are notified to the parent/guardian and the high school. The platform also tracks the number of times matches were rejected by the provider and that also affects ratings.
Registration and Vetting: Each high school student registers with the J4S platform with the name of the high school he/she attends and that is validated with the high school administrator via email to ensure they are all current high school students. They also provide name, address and cell of a parent/guardian or school official. The senior citizens registers and provide their name, address and payment information.
Focused Matching: J4S platform *algorithmically* matches the errand and the provider based on the skill set, feedback ratings, the current location and the travel radius and completion time.
Smart Batching: One provider can run multiple errands for a group of consumers for certain pickup type errands that are close by or at the same service location. The platform tries to batch multiple errands of the same consumer or different errands of different consumers together when trying to match providers. Better batching lowers the cost the consumers pay. Batching is most the effective way to lower the price.
Enhanced Options: Other enhancements include: i) *Common errand tagging*, ii) *Smart Speaker integration*, iii) *Scheduled service option, iv) Photo evidence and verification, v) Discounts, vi) Bonus and Incentives vii) Dynamic price adjustment.*

Proof of Concept: The pilot involves students at the team school and word of mouth outreach to their grandparents and their network. The basic app mockups are vetted by a group of students and seniors to identify ease of use. The basic matching, payment processes and data flow are vetted in the pilot.
Customer Acquisition: Given that there are millions of students, and millions of seniors, the acquisition cannot be entirely be through word of mouth. For this, we will partner with large aggregators of supply and demand, such as high school associations and senior citizen facilities and AARP. We will also need to purchase ads in media and websites and social media platforms that reach these two opposite demographics.

Unique Value Proposition

Unique demographic: The targeted demographic of matching senior citizens with high school students for running errands makes the solution unique. It addresses the demand of a population segment that needs errands done along with a service provider population segment of teenagers looking for service hours or short paying gigs in their spare time on their schedule. High school students is a population segment that the team understands very well too.

Unique pricing: With the unique platform managed price bidding, there is a control of pricing by the service consumer and a control of job acceptance by the service provider, making them both reach the optimal price point and value in real-time. By supporting both volunteering options for certain tasks as well as paid service it enables students to gain service hours along with earning money.
Unique features: Flexible errand scheduling based on instant start or a later completion time provides flexibility of scheduling. Multi-way handshake enables better parental control and callback verification by the service location supervisor enables safeguarding private information and better reliability.

Revenue Model

1. **Primary Revenue:** The J4S platform will collect a 10% fee for each errand that is completed for a paid service and a $0.99 flat fees for errands counted for volunteer service hours. Assuming each senior needs about 1-5 hours of services per week, at 10% of $10/hr, we will generate between $1 to $5 per senior per week, averaging $3 per senior/week or $150 per senior/year. When we have 1M active seniors, we will be generating about $150M/year.
2. **Development and Operational Cost**: Initial development cost would be cost of building the software platform (mostly team and launch cost) of $2M (10 person team). Operational cost will require support team of 5 adding to a $3M per year cost. At the end of the second year if we have around 40K actively using seniors on the platform we should *break even*.
3. **Insurance Cost**: Given minors and seniors and safety issues we need liability insurance to cover upto $10 million costing around $10k per month.
4. **Available Market**: There are 20 million 16-19 yrs old students in the US. Conservatively, assuming that each of them can spare 10 hours a month for doing errands for seniors, we have an available **supply of around 2400 million student hours** a year. There are 40 million senior citizens in the US who on average need 3 hrs of errands per week making it a **demand of around 6000 million errand hrs per year.** Since the supply is smaller than demand, the **addressable market** is limited by available supply to 2400 million hrs per year which at $1/hr (10% of $10/hr rate) is **$2.4 billion per year.** The size of the available market will increase if we are bounded by the demand making it **$6 billion per year** (if a student can serve multiple seniors or we expand the supply population beyond teenagers). Also the number of seniors will double by 2030, thereby, doubling the demand. Another way to increase the available market is to expand to other countries, which could potentially double the total market.
5. **Market Share**: Initially, if the platform is successful we plan to cover 2.5% of the US market or 1 million seniors generating a revenue of $150 million per year.
6. **Growth**: Once we get the SF Bay Area launch (2 yrs from start) and break even, we will then expand to other geographies in the US over the course of the next five years doubling the demand every year. At the end of seven years, we should have penetrated about 2.5% of our addressable market, generating about $150M/year. Ultimately we should be able to grow to 10% of the available market or $600 million per year.

7. **Additional revenue**: A completely different vector of expansion is providing our platform as a service for anyone who is interested in setting up a gig economy for a different market segment. Assuming that we spend around $10M to build the platform as a service and charge a smaller fraction say 1% from the secondary business provider per transaction, this could easily generate another $50M.

Competition

Large platforms such as Uber, Amazon, Lyft and TaskRabbit can expand to this niche market. However, given our understanding of the customer profiles, a targeted demographic has a much better success than a generic platform. Cost becomes a big factor for senior citizens and the pricing models of these large companies does not cover the overheads of supporting a niche market. Moreover, Uber like matching of a provider and consumer is not sufficient--we leverage schools for vetting, parents for consent and tracking, and service location supervisors (e.g., pharmacists) for verification-- into the solution, and this creates a unique opportunity.

Partnerships

We plan to partner with AARP, National school boards association, National association of independent schools, AASA and local retirement communities to market the platform.

The Team

Arnav Jhingran and Bryce Hackel are sophomores at the Bellarmine College Prep at San Jose. Studying in a Jesuit institution with a focus on service, they have spent numerous hours volunteering to help seniors at the VA hospital in Palo Alto and at retirement communities like Sunnyview and the Villages near and around San Jose. They are also both Java programming buffs and are fascinated (being avid users) with the backend infrastructure of big Internet giants like eBay and Uber and have been taking courses on Coursera to understand these platforms. Creating a business to help seniors using technology similar to these platforms was a dream venture.

References

1. https://www.census.gov/newsroom/press-releases/2018/cb18-41-population-projections.html
2. *https://www.seniorerrandservice.com/senior-boom-creates-opportunity-for-specialized-errand-service/*
3. https://www.taskrabbit.com/m/delivery-shopping-direct
4. https://www.hurdlr.com/blog/on-demand-economy-gigs
5. https://eng.uber.com/uber-big-data-platform/
6. https://www.computerweekly.com/news/2240219736/Case-Study-How-big-data-powers-the-eBay-customer-journey
7. https://tech.instacart.com/how-instacart-onboards-thousands-of-shoppers-every-week-217b209b55d5
8. https://www.longtermcarelink.net/article-2014-6-25.htm