TakeFive

Take Five’s

Opportunistic Plan

Company Name	Product
Take Five	BookBot
Created By	Timeframe of Opportunistic Plan
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The following report contains our company's twelve-month start-up model of our Innovation Project opportunistic plan. Within the plan is the consideration of external and internal factors that may affect the release of the next version of our product, BookBot.

External factors include the MVP itself, the customers who are our target market, and the market we plan to sell the product in. The internal factors that are touched upon are our own team, the company's financial state and the goals we plan to meet within this timeframe.

Vision statement

Take Five aims to create products that will serve everyone around the globe, helping them live productive days to their fullest. Our vision is to become the world's go-to company when it comes to robotic assistance.

Mission statement

Our current mission is to continue innovating, to create products, like BookBot, that meet the three sustainable development goals of quality education, good health and well-being, decent work and economic growth. We plan to create products using low cost

Our values

As a team, our values involve promoting innovation and advancing our adaptability and a growth mindset, to tackle new problems, which assists to enhance our team productivity, alongside ensuring the team can function effectively in stressful or unexpected situations, instead of getting overwhelmed. Moreover, we strongly value in putting our customers first, as we create our products to help the people, and they help us create our products by providing feedback on new features and improvements.

External Factors

The Product (The MVP)

Our company, Take Five, is developing a library management robot called BookBot.

Our BookBot will assist our targeted audience, which consists of librarians, library staff, and individuals who visit and utilize the library, such as students and visitors by enhancing their experience within the library. This will by adding a friendly AI robot, BookBot into the environment.

This is to help the library staff when it comes to dealing with multiple tasks, one being, returning books to where they originally belong, as many visitors tend to leave pick up books and not put the books back in its original place, disrupting order and possibly making it harder for the next person to find the book. BookBot can help librarians maintain the bookshelves, keeping the library in order.

BookBot will help our target audience by assisting them to complete specific problems, such as tasks like placing books on shelves where they belong; giving students a verbal warning if the noise level exceeds its set limit for the area; guiding students to their destination of where a certain book may be. By completing these tasks, this will ensure a smoother process for both librarians and those who use the library.

BookBot can do this due to one of many features/components we have selected for the robot, to function and perform the tasks needed. For example, the AI recognition via camera allows BookBot to do such things as object recognition ensuring that BookBot does not bump into any obstacles which may lead to a risk and allow a safe and calculated navigation around the library. It has an Arduino sound sensor to detect noise for areas in the library which may have a certain sound level which cannot be exceeded, as well as making BookBot more situationally aware of to its environment, adapting and adjusting its sound level, making BookBot perfect for a library environment.

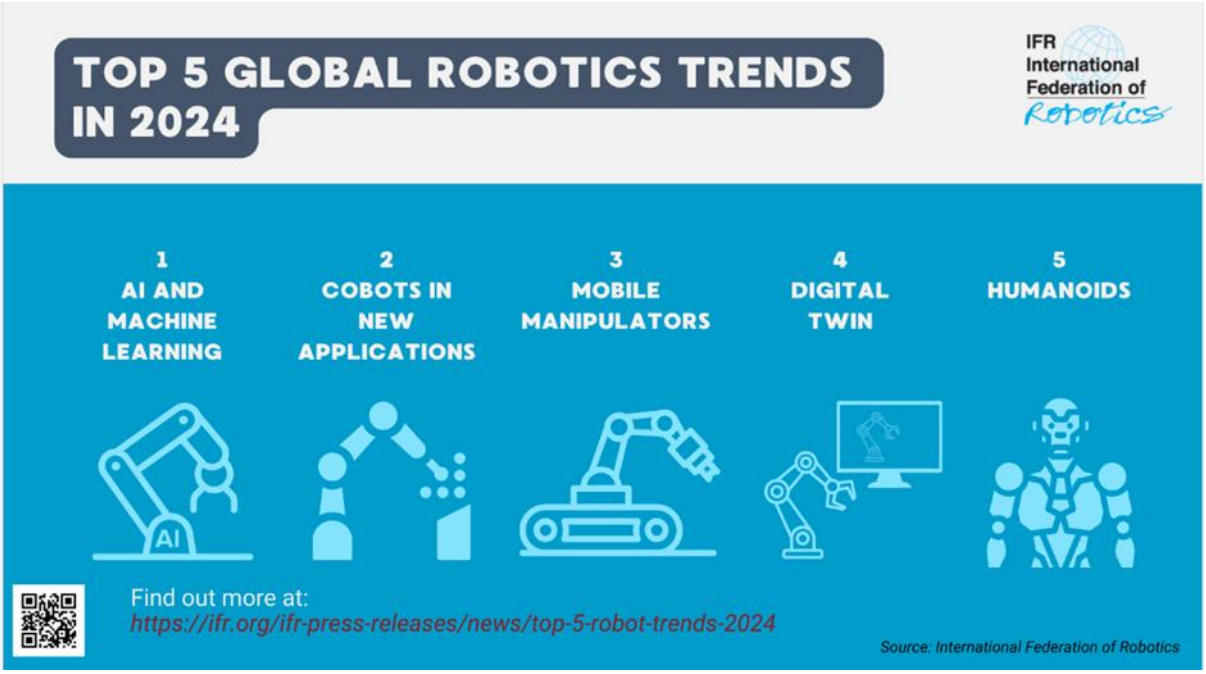
The Market

Since the 1980s, libraries have been continuously giving up portions of their historic domains. The 1980s saw the replacement of card catalogues with machine-readable catalogues; the 1990s saw the development of the online public access catalogue (OPAC) made possible by the Internet; and RFID allowed library users to check, return, and sort books even when a librarian wasn't around. Libraries use technology to give their users better, faster and more reliable services.

According to the rankings (Frey and Osborne, 2017), highlighting various occupations and their likelihood of computerisation, the librarian profession is 65% likely to be automated. The increasing technicalities of libraries is leading to a wide cultural diversification of patrons, library personnel and services (Vlachos, Anne Faber Hansen and Jakob Povl Holck, 2020).

Top 5 Robot Trends 2024

The number of operating robots worldwide reached 3.9 million units. This demand is being fuelled by several fascinating technical advancements.



Robotics is seeing substantial advances in humanoids. The Chinese Ministry of Industry and Information Technology (MIIT) recently published detailed goals for the country's ambitions to mass-produce humanoids by 2025. It predicts that humanoids are likely to become another disruptive technology. The potential impact of humanoids on different sectors makes them an exciting area of development, but their mass market adoption stays a hard challenge.

Many libraries are undergoing a significant transition in 2024 because of the increased integration of technology and the necessity to rethink their roles in the communities they serve. This new wave of innovation takes a holistic approach to enhancing user experiences and increasing the influence of libraries.

"The future library may have virtual assistants or robots that effectively handle regular activities such as restocking shelves and directing users to the items they need."

The local libraries will no longer only be an archive of information; instead, they will become a dynamic hub of immersive and interactive learning experiences due to the integration of AR, VR, AI, and other technologies.

Competitors

Teams with similar product concepts to ours will be possible competitors for our product, Bookbot. Apart from that, two of them are:

Tella	Tella (2020) noted that AI in humanoid robots is already available in libraries in both developed and developing countries, which is no longer news. The robots engage in

	activities such as scrambling, rolling, soaring and climbing. These robots have an impact on libraries and the larger information (and social) environment in which we all live. Libraries have recently begun to provide access to robots and robot-related science technology, engineering and mathematics (STEM) education programs.
SirsiDynix	On their website they state the following: "*We create, develop and deliver robust software and services for libraries across the world.*" SirsiDynix is the world's leading provider of library technology solutions, connecting over 300 million people with information and resources at more than 23,000 academic, public, school, government and corporate library facilities in over 70 countries. - "We believe in providing the best tools available. We take a Best-of-Breed approach, so that you have software and solutions that best fit the needs of your library system." (Sirsi, n.d.)

Robotics technology companies can offer solutions to a range of industries, including libraries, which although might not directly competing in the library digitalisation market, could pose a threat if they do choose to.

Adjacent products / services

In addition to library automation systems, there are other products and services that cater to similar demands or assist library operations:

RFID devices are an example of an adjacent product. Companies use RFID tags and readers for inventory management and security purposes in libraries (www.bibliotheca.com, 2018).

Westport (Conn.) Library	offers training for its two programmable small humanoid robot (NAO) robots
The Chicago Public Library	lends small, mobile Finch robots.
The University of Rhode Island Libraries	AI Lab hosts weekly "robot hours", during which students learn to control and program robots.
Mansueto Library, University of Chicago	the Automated Storage and Retrieval System (ASRS) claims to allow readers access to their desired materials within minutes (Gizmodo, 2015)

Market segmentation

Understanding market trends is crucial for identifying opportunities and challenges in the library automation space. Market segmentation is used to better target potential customers whose needs can be met by targeting their needs and wants which is done by knowing about them better. These are 4 types of market segmentation:

Demographic	Demographic segmentation is used to split the target audience and create customer personas based on objective information, such as: age, gender, income, education, religion, profession. Our demographic segment is going to be students, library staff who frequently visit and use the library.
Psychographic	This is the grouping of people together based on their similar personal values, political opinions, aspirations and psychological characteristics. Customers can be grouped based on their: personality, hobbies, social

	status, opinions, life goals, lifestyle, values and beliefs. Our robot will be helping those who have a passion for reading or simply need to borrow the books due to their lifestyle demands, e.g. a student borrowing a book for research purposes.
Geographic	This is grouping customers based on where they live and where they shop. This includes climate, culture, language, population density (urban vs rural). We are aiming to target local libraries and libraries within local educational institutions.
Behavioural	This is the process of grouping customers based on common behaviours they exhibit when they interact with our brand (Yieldify, 2022). For this segment, included are students and staff members who use the robot as they will have to return the borrowed books.

How much investment raised?

The investment that was agreed upon as a team is £100 (per unit).

The Customer

Provided below is a customer persona that represents the key traits of our target market.

Name	Margot Reed
Sex	Female
Age	42
Highest level of education	Bachelor's degree
Organisation size	Up to 10 staff
Social networks used	LinkedIn, Facebook, YouTube, X
Preferred method of communication	Email / Facebook / LinkedIn
Job responsibilities	Engaging with users of the library, organisation of books and resources, promoting love of learning
Reports to	Owner of the library
They gain information by	Watching the news, Facebook ads, LinkedIn feed, X posts, newspaper articles, online articles
Tools they need to do their job	Technological devices, map of library, physical ability
Job is measured by	Efficiency of the work they do and the satisfaction of library users
Biggest challenges	Conflicts with others, understaffed time periods, library funding
Goals or objectives	To increase library users' satisfaction, the library's reading challenge

Internal Factors

Operations

Within the given timeframe of 12 months, we will have many goals we want to achieve. These can be separated into 3 sections, goals to do with the MVP, product marketing, and the company.

The table below summarises the goals our company will strive to meet during the timeframe and their costs, broken down into each quarter of the year.

Milestones	Product	Marketing	Business	Costs
Q1	Take in feedback from initial release of BookBot in the Innovation Festival. Discuss improvements to be made for BookBot 2.0. Gather everything necessary to build BookBot 2.0.	Create company and product social media accounts. Determine how much customers will be willing to pay based on current vision of BookBot 2.0. Offer a 2.0 beta test to interested customers.	Assign roles to team members. Find funding for production and release of BookBot. Apply for insurance and register business.	£2130
Q2	Build BookBot 2.0. Collect feedback. Tweak for official BookBot 2.0 release.	Hold a BookBot 2.0 beta testing at chosen venue and a few local libraries that are partnered with us.	Look for new team members and increase current members' satisfaction in the workplace.	£350
Q3	Release BookBot 2.0. Work on and experiment with new features of the product.	Collect feedback on social media to decide which features must be added and improved. Work with local primary and secondary schools to promote the product.	Maintain a sales goal of 20 units. Hire new members. Create a new project to work on; innovate a more generalised robot that can be used anywhere and is useful to anyone.	£7084
Q4	Use feedback on BookBot 2.0 to form a new improved model: BookBot 2.1.	Work with colleges and sixth forms to promote BookBot. Announce the coming release of BookBot 2.1.	Maintain the sales goal.	£7170

The table below is a more detailed version of the quarterly breakdown. It contains goals for each month and their costs.

Month	Product	Marketing	Business	Costs
June	Work through the feedback given at the Innovation Festival for BookBot 1.0.	Make social media accounts for BookBot (e.g. on Instagram, X, YouTube, TikTok). Post photos and videos from the Innovation Festival.	Short term goals: - Find funding for the production and release of BookBot 2.0. - Finalise company name and logo, and product name and logo. - Look at how to register the company business and how to apply for insurance. - Register for a start-up loan (e.g. gov.uk). Long term goals: - Continue innovating, using BookBot as a base, and transform it into a product that can be tailored to any group of customers in the market.	£0 + £0 + £0 = £0
July	Discuss improvements to be made for BookBot 2.0 including the upscale factor with more efficient arms and hands. Start planning upscaled and improved product: - Make Tinkercad circuits - Redesign the website via Figma - Touch up on the 3D model	Contact interest customers and ask how much they would be willing to pay for BookBot 2.0.	Short term goals: - Register business and apply for insurance (for insurance, e.g. BIBA (British Insurance Brokers' Association) where cost of insurance for a Band 1 business (1 to 5 staff) is £590 in 2024). - Look for places we can use 3D printers or purchase a 3D printer for the company. Long term goals: - Search for an office to store all the company's materials which is also suitable for team meetings.	£0 + £0 + (£590 + £300) = £890
August	Start 3D printing the new model of BookBot. Gather components for	Design flyers and shoot ads. Print flyers and put them up close to local	Start looking for new members to hire on LinkedIn and university to expand the company.	£1500 + £240 + £0 = £1740

	the upscaled product.	schools and libraries. Put up ads online (e.g. Instagram, X, Facebook, YouTube, TikTok).		
September	Build two units of BookBot 2.0.	Offer a 2.0 beta test to interested customers in the local area. Try to partner with local libraries as well as our own university libraries.	Look for a venue to hold a beta testing meet.	£0 + £0 + £150 = £150
October	Collect feedback from beta testing. Tweak product based off beta testing feedback just in time for release.	Hold beta testing at chosen venue and at our own university's libraries. Ask for feedback on the product and how much customers will be willing to pay for BookBot 2.0.	Start expanding the company team with volunteers.	£0 + £0 + £0 = £0
November	Build 20 units to sell at start of release.	Announce BookBot 2.0 on social media.	Increase company's team members' satisfaction in the workplace.	£200 + £0 + £0 = £200
December	Release BookBot 2.0. Prepare next month's 20 units.	Collect feedback via forms embedded in QR codes on product's receipts as well as on social media. Poll features to be added and improved next.	Set sales goal as at least 20 units this month.	£2000 + £0 + £0 = £2000

January	Work on how we can implement suggested features or make improvements. Prepare next month's 20 units.	Work with local primary schools to promote BookBot 2.0.	Maintain a sales goal of 20 units. Connect to those enthusiastic on LinkedIn and interview them to add them to the company's team.	£2000 + £0 + £0 = £2000
February	Experiment with new features to add to BookBot. Prepare next month's 20 units.	Work with local secondary schools to promote BookBot 2.0.	Maintain a sales goal of 20 units. Hire new members and remember to add to the insurance fees (e.g. BIBA asks for £1174 in 2024 for a Band 2 (6 - 9 staffed) company). Innovate a new robot to be used at home – a generalised version of BookBot.	£2500 + £0 + £584 = £3084
March	Based on all feedback given until this point in time, finalise which features will be included for BookBot 2.1. Prepare next month's 20 units.	Work with local secondary schools to promote BookBot 2.0.	Set a new sales goal of 25.	£2000 + £0 + £0 = £2000
April	Gather materials, start 3D printing and building BookBot 2.1. Prepare next month's 20 units.	Continue to promote product via ads online and physical flyers.	Maintain sales goal of 25 units.	£5000 + £120 + £0 = £5120

The Team (A SWOT Analysis)

Strengths	Weakness
The strengths that our team possesses include the equal distribution of work within the team, hence promoting effective leadership, as it will help to ensure that members are communicating and collaborating effectively, and making sure that the roles and responsibilities are clear, to prevent confusion, and to be more organised. Moreover, all our team members possess relative experience and knowledge in programming languages, such as C++. This will be helpful for programming the robot, while HTML and CSS will be useful for developing the website. Another strength includes how we are motivating and encouraging each other in the team, as it helps to ensure tasks are being completed efficiently and with enthusiasm.	The weaknesses that can have a negative impact on our team and its management involves the lack of diverse skills between members, including the skills required to reach the team's objectives of the final product, due to all team members studying the same course. Nonetheless, meeting the deadlines can also be a weakness, as more challenging tasks, might require more time than others, but also because team members have different schedules, therefore time management is a weakness to look out for. Hence, another weakness, in which we must work upon, involves miscommunication between the members, caused by various reasons such as not all team members being present during the allocated meetings and lab sessions, decreasing the productivity of the team, alongside the efficiency and leading to a waste of time.
Opportunities	**Threats**
The opportunities that will be provided throughout this project, involves skills enhancement, which will be more advantageous in the field, as it provides more experience to each member, which can benefit one when applying for jobs or securing internships, in the future. Moreover, the use of AI, will help us to learn new skills and explore more trending and prevalent ideas, that can be implemented in this project, thus making it more unique. This opportunity can also improve our communication skills, by learning how to work within a team, which would also help us in the future, while working on more projects.	The threats which can negatively impact our team, include the differences in opinions, which may cause conflicts, but also technical issues, due to the lack of diverse knowledge. Other teams could have a similar idea to ours, exposing us to competition, meaning our product must be more creative than the opponents, which also increases the expectations for the product. Feedback which the team receives could also influence the team members enthusiasm to complete the project. A threat that can impact us highly in the future, involves not planning in advance, and the consequences of this includes important tasks not being prioritised, such as equipment testing, which can cause further delays.

Financials

The table below shows the profit and loss statement which analyses the performance of our company over the year. The profit and loss statement provides a comprehensive view of our revenue, costs and profitability.

Profit (Loss)				
P&L	**Product**	**Marketing**	**Business**	**Cost**
Gross Revenue	£36,575.00	£-	£-	£36,575.00
Direct Costs	£18,000.00	£2,880.00	£300.00	£(21,180.00)
Gross Margin	£-	£-	£-	£15,395.00
Overheads	£-	£-	£590.00	£(590.00)
Net Margin	£-	£-	£-	£14,805.00
Tax (20%)	£-	£-	£2,961.00	£2,961.00
Profit	£-	£-	£-	£11,844.00

Gross Revenue: the total income from sales of BookBot for the entire year amounts to £36,575.

Gross Margin: this is calculated by subtracting direct costs from gross revenue, our gross margin stands at £15,395.

Direct Costs:

- **Product:** expenses directly related to the production. Our product costs sum up to £18,000 ((£75*20 = £) *12). [Components]
- **Marketing:** expenses related to marketing (e.g. ads, and flyers). (240*12)
- **Business:** a lump sum payment of £300 for a 3D printer.

Overheads: our annual insurance cost (£590). [ongoing expenses which are not related to the business cost]

Tax (20%): the net margin is taxed at 20%, resulting in a tax payment of £2,961.

As a result, a profit of £11,844 was obtained after taxes was considered.

The table below shows a detailed cash flow statement which outlines the financial transactions and balances each month. Through this statement stakeholders can gain insight into Take Five's financial health, operational efficiency and liquidity.

Cash Flow						
	June	**July**	**August**	**September**	**October**	**November**
Starting Balance	£-	£(73.33)	£(436.67)	£(210.00)	£16.67	£243.33
Direct Costs	£2,040.00	£1,740.00	£1,740.00	£1,740.00	£1,740.00	£1,740.00
Overheads	£-	£590.00	£-	£-	£-	£-
Loan Repayments	£833.33	£833.33	£833.33	£833.33	£833.33	£833.33
Total Costs	£2,873.33	£3,163.33	£2,573.33	£2,573.33	£2,573.33	£2,573.33
Customer Receipts	£2,800.00	£2,800.00	£2,800.00	£2,800.00	£2,800.00	£2,800.00

Investment Income	£-	£-	£-	£-	£-	£-
Total Income	£2,800.00	£2,800.00	£2,800.00	£2,800.00	£2,800.00	£2,800.00
Closing Balance	£(73.33)	£(436.67)	£(210.00)	£16.67	£243.33	£470.00

	December	**January**	**February**	**March**	**April**	**May**
Starting Balance	£-	£226.67	£453.33	£680.00	£1,606.67	£2,533.33
Direct Costs	£1,740.00	£1,740.00	£1,740.00	£1,740.00	£1,740.00	£1,740.00
Overheads	£-	£-	£-	£-	£-	£-
Loan Repayments	£833.33	£833.33	£833.33	£833.33	£833.33	£833.33
Total Costs	£2,573.33	£2,573.33	£2,573.33	£2,573.33	£2,573.33	£2,573.33
Customer Receipts	£2,800.00	£2,800.00	£2,800.00	£3,500.00	£3,500.00	£4,375.00
Investment Income	£-	£-	£-	£-	£-	£-
Total Income	£2,800.00	£2,800.00	£2,800.00	£3,500.00	£3,500.00	£4,375.00
Closing Balance	£226.67	£453.33	£680.00	£1,606.67	£2,533.33	£4,335.00

Starting Balance: the initial amount of money at the beginning of each month. As shown above, in July the starting balance is negative (-£73.33) but over the months the starting balance gradually increases, reaching to £2,533.33 in May.

Direct Costs: the cost associated with production of BookBot. The first month direct cost differ from rest of the months this is because the lump sum payment was considered (£300 for 3D printer. Whereas from July to May the direct cost are consistent (£1,740).

Overheads: this is cost not associated with production. In July, there's an overhead cost of £590 for annual insurance payments.

Loan Repayments: since we took a loan of £10,000, the monthly payment is £833.33.

Total Costs: direct costs + overheads + loan repayments.

Customer Receipts: this shows the income from the sales of BookBot. From June to February, we have consistently sold 20 units at a price of £140 each. In March and April, we increased our sales goal to 25 units, which resulted in increased customer receipts. With the release of BookBot 2.1, we have increased the price unit to £175.

Closing Balance: the amount of money at the end of each month. Shown above closing balance increases each month, indicating positive cash flow.

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