



Ideas and informatics Project Proposal

Katarzyna Łyczek MIMUW
Yuliya Zhautouskaya MIMUW
Paulina Michalczuk WUM
Anna Wieclaw WUM
Marcin Kubacki MIMUW
Kacper Zieniuk MIMUW
Karol Chojnacki MIMUW

University of Warsaw

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Introductory Description of the Idea

LekoSfera is an innovative app designed to enhance medication management and safety for individuals and healthcare providers. By combining medication tracking, drug interaction analysis, and personalized health insights, the app empowers users to make informed decisions about their health. Advanced features, like AI-driven chatbot assistance and visit summaries for medical professionals, ensure easy integration into daily health routines and professional workflows.

Vision Summary

LekoSfera envisions a world where medication management is no longer a burden or risk, but a seamless, intuitive experience that empowers individuals and supports healthcare professionals. By integrating advanced tools with user-friendly design, the app aims to improve medication safety, enhance adherence, and foster informed health decisions for all.

1 Target Populations and Their Needs

We can divide the population needs and solutions into a few areas. First are individual patients, people of all ages using the app for private use.

Needs	Solutions
Simplify tracking of medication, dosages, and schedules	Medication reminders
Avoid harmful drug interactions	Interactions analysis
Access easy-to-understand information about prescriptions, side effects, and limitations	Personalized dosage recommendations and informative recap of medication leaflets

Table 1: Needs and Solutions for *Individual Patients*

Second of all, there are caregivers and families.

Needs	Solutions
Manage medication for dependents, especially elderly or chronically ill individuals	Notification for missed doses
Ensure adherence to prescribed regimens	Shared tracking features

Table 2: Needs and Solutions for *Caregivers and Families*

Third of all, the group we could be targeting are healthcare providers.

Needs	Solutions
Quickly review medication history and side effects for accurate diagnoses and prescriptions	Medication summaries tailored for medical professionals
Efficiently summarize past visits and prescriptions	Visit summaries tailored for medical professionals

Table 3: Needs and Solutions for *Healthcare Providers*

2 Unique Value Proposition

We believe that the idea of the app will bring unique value to the table. Some of these are:

- **Integration of Multiple Features:** Unlike existing apps, LekoSfera combines medication tracking, interaction analysis, reminders and AI-based insights in one intuitive platform.
- **Personalization:** Tailored recommendations based on user-specific data, for example medical history, demographics and allergies.
- **Advanced analytics:** Summarization of medication history, including reasons for discontinuation, thus enhancing safety and efficiency.
- **Dual User Focus:** Offers separate, well-designed functionalities for patients and health-care professionals, bridging communication and information gaps.

3 Contact Channels for Potential Users

There are many ways to contact potential customers. It is very important to spread awareness of dangers of improper handling of medicine, since many people are not aware of potential dangers. For example, the potential contact channels could be:

- **Digital marketing**
Social media campaigns on Facebook, Instagram and TikTok targeting specific demographics such as elderly patients and young caregivers. Also, use Google Ads with keywords like drug interaction checker or medication management app.
- **Partnerships**
We could collaborate with pharmacies and pharmacy chains to promote the app at the point of medication purchase. Also, collaboration with healthcare providers could lead to distributing promotional material through doctors offices and clinics.
- **Medical universities and student networks**
Engage students and professionals in Medicine and Pharmacy as early adopters to promote the app within their networks.
- **Public health initiatives**
Collaborate with government projects like E-Zdrowie initiative to promote apps use alongside digital healthcare records.
- **Word of mouth**
Leverage satisfied users to refer others through incentives like discounts or premium features.

4 Competitive Analysis and Differentiation

4.1 Medisafe

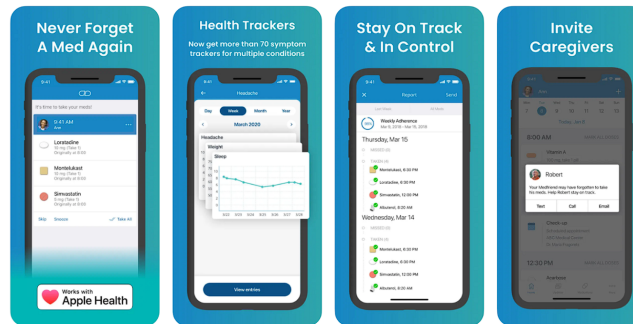


Figure 1: Screenshot of features of app *Medisafe*

- **Features:** Medication tracking, reminders, interaction alerts, and caregiver notifications. Also includes refill reminders and health measurements tracking.
- **Limitations:** Lacks advanced personalization based on medical history, biological data, and allergies. No AI-driven analysis of doctors notes or past medication impact. While it provides adherence tracking, it lacks AI-powered re-prescription alerts and deep integration with healthcare providers.

4.2 Pill Reminder - Meds Alarm

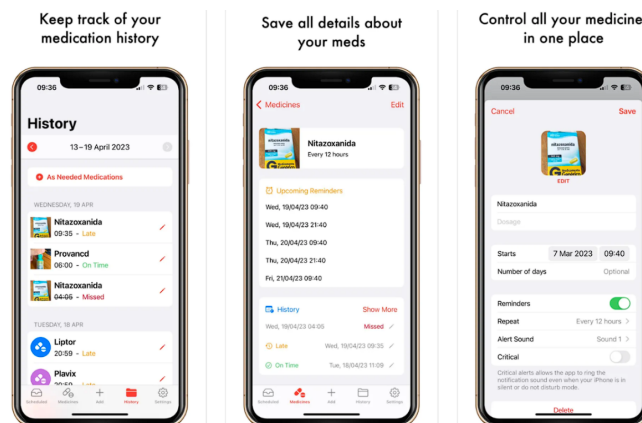


Figure 2: Screenshot of features of app *Pill Reminder - Meds Alarm*

- **Features:** Simple and user-friendly medication reminder with customizable alarms and scheduling. Provides notifications for medication intake and supports multiple medications.
- **Limitations:** Does not include drug interaction checking, AI-driven insights, or medical record storage. Lacks advanced features such as re-prescription alerts or integration with healthcare providers.

4.3 Drugs.com Medication Guide

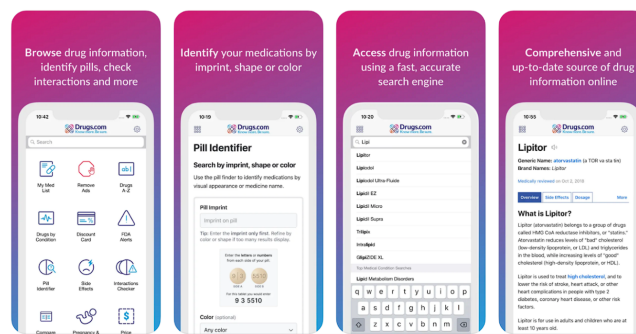


Figure 3: Screenshot of features of app *Drugs.com Medication Guide*

- **Features:** Comprehensive drug database with detailed prescription information, drug interaction checker, and side effect warnings.
- **Limitations:** Lacks medication reminder functionality and personalized dosage tracking. Does not include AI-powered insights or integration with medical records and healthcare providers.

4.4 MyTherapy

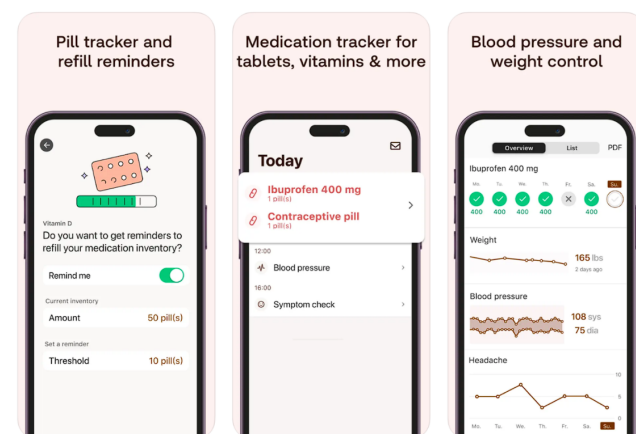


Figure 4: Screenshot of features of app *MyTherapy*

- **Features:** Medication adherence tracking, symptom logging, and health reports. Provides motivational support and reminders to improve adherence.
- **Limitations:** Lacks AI-powered explanation tools for medical notes and test results. No advanced personalization based on individual health history. Does not include re-prescription alerts or seamless healthcare provider integration.

Our solutions stands out from the listed competitors in the following ways:

- **Interaction Check and Alerts**

Automatically detects potential drug interactions based on a user's prescription history and provides real-time alerts to prevent adverse effects.

- **AI-Powered Insights**

Chatbot explains doctors notes, test results, and potential drug effects in easy-to-understand language.

- **Medication History Summary**

Provides an organized timeline of prescribed, discontinued, and missed medications, helping users and doctors make informed decisions.

- **Healthcare Provider Features**

Auto-generates visit and medication summaries for medical professionals, improving efficiency and decision-making.

5 Overview of the application

- **User Authentication:**

- Users can register and log in to access their personal dashboard.
- Passwords are securely hashed

- **Medication Management:**

- Users can add medications to their profiles.
- Drug interactions are checked based on a predefined set of interactions.

- **Visit History:**

- Users can add medical visits to their history, specifying the reason and adding notes.
- Each visit can be saved with a custom date provided by the user.

- **Drug Interaction Warning:**

- After adding medications, the app checks for any potential harmful interactions based on the drugs the user has entered.

- **Frontend Design:**

- The design is responsive and uses a light color scheme with a linear gradient pink background.
- The navigation bar contains links to the dashboard, appointments page, and logout option.
- A logo is displayed on the left side of the header.

- **Backend Structure:**

- Authentication and Security - Uses a secure authentication system with hashed passwords and token-based authorization. Supports multi-factor authentication for added security.
- API Endpoints - RESTful API endpoints for user management, medication tracking, visit history, and alerts. Secured with authentication and role-based access control.
- Data Processing and AI Integration - Uses machine learning to detect medication adherence patterns and provide personalized recommendations. AI-powered chatbot processes medical notes and generates simplified explanations.
- Scheduled Tasks and Notifications - Background jobs handle medication reminders, alert notifications, and prescription renewal alerts. Uses push notifications and email alerts for timely updates.

- **Database Structure:**

- Users Table - Stores ID, name, email, hashed password, and profile details. Logs authentication timestamps and security tokens.
- Medications Table - Stores medication name, dosage, frequency, and timing. Links to interaction warnings and medication history.
- Drug Interaction Database - Contains predefined drug interactions. Cross-checks medications and alerts users about conflicts.
- Visit History Table - Logs medical visits with date, reason, doctors notes, and prescribed treatments. Tracks past visits and related medications.
- Alerts Table - Stores alerts for interactions, missed doses, and re-prescription risks. Notifies users and healthcare providers of critical warnings.

6 Financial Business Plan

Executive Summary

Revenue will be generated through one-time payment and affiliate links. This plan outlines the revenue streams, cost structure, and financial projections for a five-year period. The costs are generated mainly through server costs.

Revenue Streams

- **One-time payment**
 - Fee for buying the app: \$2.
- **Affiliate links**
 - Partner with online pharmacies to include affiliate links for purchasing medications.
 - Earn a commission for each transaction made through affiliate links (10% per transaction).

Cost Structure

- **Development Costs**
 - Initial App Development: \$0 (we implement the app by ourselves).
 - Ongoing Maintenance: \$0/year (we add further features by ourselves).
- **Marketing and User Acquisition**
 - Social media marketing: \$0/year (we run social media accounts by ourselves).
- **Operating Costs**
 - Server and Hosting: \$2,000/year.
 - Customer Support: \$0/year (we do it by ourselves).

Financial Projections (Year 1 - Year 5)

Assumptions:

- 10,000 app downloads in Year 1, growing 50% annually.
- Average monthly revenue from affiliate links in Year 1: \$500, increasing by 30% annually.
- Funding requirements - The app requires an initial investment of \$2,000 to cover server costs in the first year.

Revenue Breakdown

Year	One-time payments	Affiliate Links	Total Revenue
1	\$20,000	\$500	\$20,500
2	\$30,000	\$850	\$30,850
3	\$45,000	\$845	\$45,845
4	\$67,500	\$1,098.5	\$68,598.5
5	\$101,250	\$1,420.5	\$102,670.5

Table 4: Revenue Breakdown by Year

Cost Breakdown

Year	Server Costs	Total Costs
1	\$2,000	\$2,000
2	\$2,000	\$2,000
3	\$2,000	\$2,000
4	\$2,000	\$2,000
5	\$2,000	\$2,000

Table 5: Costs Breakdown by Year

Net profit

Year	Total Revenue	Total Expenses	Net Profit
1	\$20,500	\$2,000	\$18,500
2	\$30,850	\$2,000	\$28,850
3	\$45,845	\$2,000	\$43,845
4	\$68,598.5	\$2,000	\$66,598.5
5	\$102,670.5	\$2,000	\$100,670.5

Table 6: Net Profit by Year

7 Survey

Methodology

Since we have identified several potential problems we deemed potentially within the scope of our app, we wanted the survey to provide us feedback whether these problems are real/common and whether our solution addresses the problem in the correct way.

- Since medicine input and doctor visits tend to increase with age we decided this distinction important
- Since we want to help users manage their medicine-taking timetable we wanted to determine their level of drug-taking and drug-management frustration.
- Wanting to help with drugs potential negative interaction with other products and their stand-alone side effects we have devised questions checking the concern level regarding these issues and potential interest in the solutions we propose
- Finally, we wanted to establish the business-side interest level among respondents, namely whether they are already using a different app and if theyre interested in a subscription model

Below graph shows age distribution of the responders.

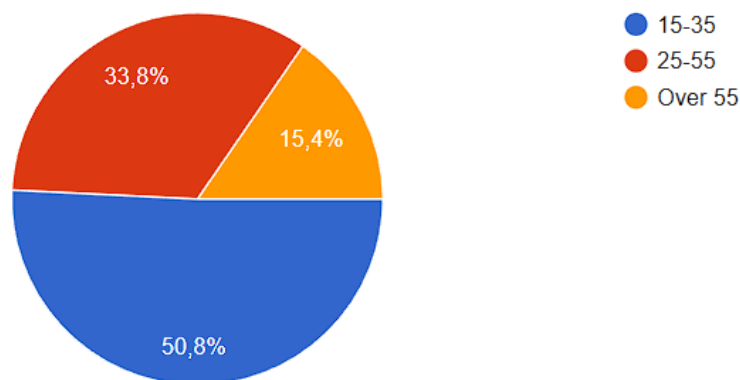


Figure 5: Age Distribution

Data suggests existence of medicine-managing issues, respondents exhibit interest in this app feature

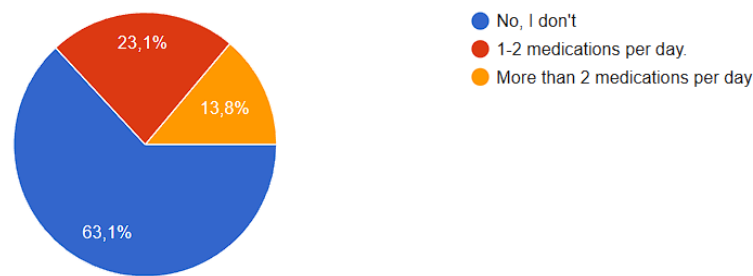


Figure 6: Question: Do you take medication regularly?

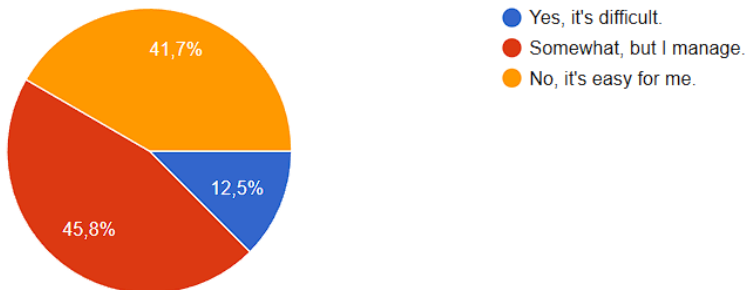


Figure 7: Question: Do you find it challenging to keep track of your medications and/or supplements?

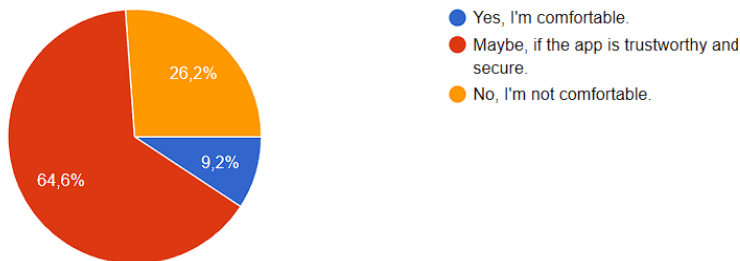


Figure 8: Question: Would you feel comfortable sharing your medical records with a secure AI-powered app to optimize your medication management?

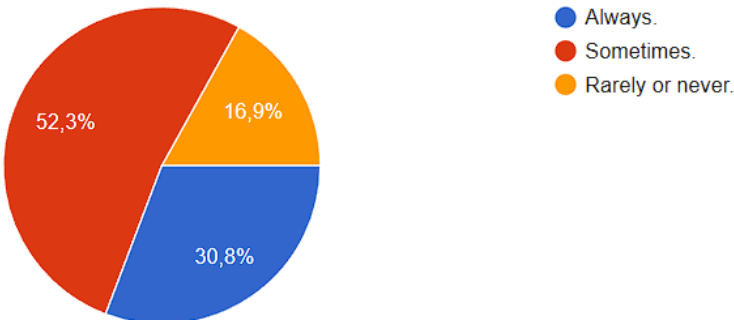


Figure 9: Question: How often do you check drug labels or consult a professional to ensure the safety of combining medications or supplements?

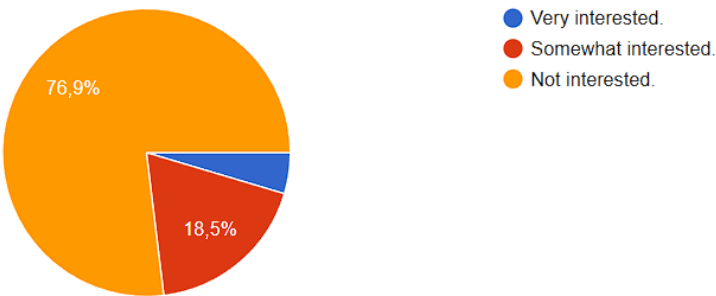


Figure 10: Question: Would you be interested in an app that tracks medications, monitors correct dosages and checks for potential interactions?