Design Concept

A person is walking in the street in Stockholm in the year 2034. They have completed the onboarding and are ready to resume learning.

They sit down to have a drink and resume their learning while waiting for their company to arrive. In this instance they use smart glasses for augmented reality.

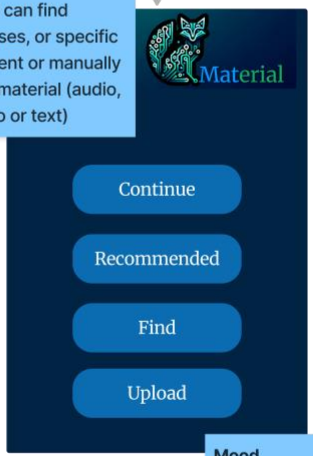
Below is a concept of the AI powered service to showcase some of the capabilities it offers.

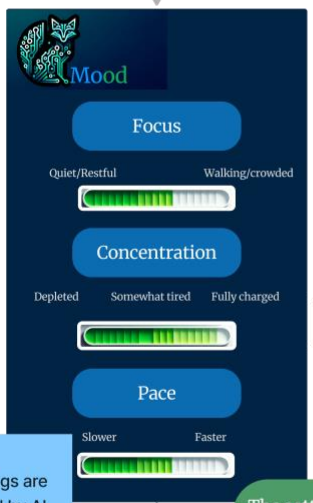
login screen
- User is ready to resume learning

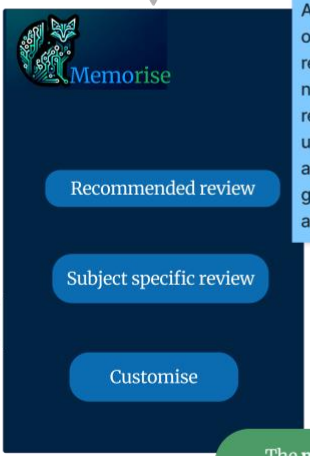
Homescreen
- User decides content, pace, is reminded to see a review of learned content and can enter the app community

The social features, such as user forums or study groups, where learners can interact with peers, discuss topics, and share resources

Material
User can find courses, or specific content or manually add material (audio, video or text)







Memorise
AI-powered based on memory retention neuroscientific research as well as user performance and similar user-group performance and goals.

Mood
These settings are personalized by AI, using IoT information and optimized for user habits, by previous inputs at similar times and in similar user groups.

The **settings (Mood)** defines the kind of material the user is presented with. For our example: low focus, and high concentration: an audio-visual material of medium difficulty/depth is suggested.

The **pace** is one of the most important features. The material is automatically edited and is played at an adaptable speed so that assimilation is optimal. For example, say during the lecture the teacher is looking for a prop, or the information rate is lower at some parts and higher at others. The playback is adapted after an LLM has analyzed a transcription of a lecture/or a text and based on users' preferences information on the cloud.

Reflection

The AI-powered service “IntelLearn” includes a generative and agentive technology, that personalizes learning experiences by adapting in real-time the flow and content of the learning experience. The primary goal is to maximize the efficiency and effectiveness of learning by harnessing technology that responds to individual needs and contexts. The motivation stems from a desire to make learning more accessible and tailored, enabling users to achieve their full potential and enjoy the process with the support of AI.

This AI service capabilities:

- Possesses **adaptable playback speed** of auditory and visual material inline based on difficulty of content, personalization of the user and users’ feedback in the cloud. It also allows for material to be manually added by the user, making the individual benefit from the AI optimization and personalization for material that is of interest to them. The service uses LLMs to determine the difficulty of each part based transcription of the content.
- Another neat capability is that it automatically suggests to **revisit previous learned content**, at optimized intervals, based on regression models trained on learners’ data (behavior) and ability to retain information and on key points of the content which it produces with LLMs on the same transcripts (or text) to promote longterm memory retention of the newly acquired knowledge. The reminders are spread further away whenever a particular subject material is revisited.
- Finally, the AI service suggests **material form and delivery method** in a subject based on the setting and concentration level of the user (mood). For example, if the user is walking outside then an informative podcast could increase the learner’s progress. At the same time, if the learner decides to sit down and feels energized and focused, a recommendation for university level lecture will appear -even an interactive lecture with an GenAI teacher if the technology exists.

Things to consider (Law and Ethics):

- Privacy Concerns: Continuous monitoring of user data (from IoT sensors for example in AR glasses, etc) may raise privacy issues.
- Dependency on Technology: Over-reliance on AI for learning adjustments could diminish personal discipline.
- Equity in Access: Ensuring that such advanced AI tools are accessible to all users, regardless of socio-economic background.

Guidelines for design considered:
From Amershi et al. 2019, G3 (Time services based on context), G4 (Show contextually relevant information) and G6 (mitigate social biases). The design is based on adapting the experience based on the setting and individual mood. There is no particular concern with social biases because the data collected can be independent from gender or socioeconomic status and the optimization is based on the individual as well, as time passes. G7 (invocation), G8 (dismissal), G9 (correction) – The user has control over starting and finishing a session as well as setting their own expectations and performance levels. The user always can approve or change the next move. G12 (remember progress), G13 (learn from user behavior)- The user can continue where they left off and gets recommendations based on preference and goals. From the AI at Google guidelines, it is socially beneficial (learning).

Some final words:

The enhanced AI-powered learning environment leverages advanced agentive technology to create a deeply personalized and adaptive learning experience. AI could revolutionize the educational experience by making it more engaging, cutting out dead content and speeding through easy or irrelevant content, so that the user can optimize their time and self-development. However, this also introduces significant challenges related to privacy and potential over-dependence on technology.

This AI-driven approach opens up opportunities for creating more inclusive and adaptive learning platforms that can cater to diverse learning styles and needs, potentially reducing barriers for those with specific learning disabilities or just variability and goals.