Virtual assistant for online learners

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Content

1. Main idea
2. Description
3. Implementation plan
4. Limitations

Idea - Real time feedback for online learners

- **What is the problem?**

    - Watching recorded lectures is one sided learning

    - Gaps in the understanding of the learner

- **Solution**

    - Virtual assistant to provide real time feedback based on different parameters(like facial expression, mouse movements, etc.)

Description

- If a learner's attention(or any other parameter) crosses a particular threshold then a personalised prompt would be generated like "Are you sure you understand xyz?", "I recommend rewatching xyz topic", "Maybe you should take a break", "Are you ready for a surprise quiz?" etc.
- The learner can pause at any time and ask doubts.
- Learners can also ask the virtual assistant to quiz them a topic.
- Analyse the learner's data to give feedback to the instructor to make the learning material more engaging.

Implementation plan

1. Datasets : FEC dataset, AffectNet dataset, other datasets on Kaggle or GitHub
2. For chat-bot(doubts and quiz) : ChatGPT API
3. Libraries : Opencv(for real time facial expression analysis), PyTorch, fastai, TensorFlow(for training DL and ML models), NLTK(for sentiment analysis)
4. Simple user interface : Flask, HTML, Jinja

Limitations

1. Privacy concerns
2. More Specific dataset for better training
3. Could be compatible with live sessions in future

Thank you