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SECJ3553 - ARTIFICIAL INTELLIGENCE - SECTION 15

**PROJECT PROPOSAL - GROUP 4**

**PROJECT TITLE:**

**AI Chatbot for Spoken English Practice**

**Theme: Smart Education**

|  |  |
| --- | --- |
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1. **AI solution**

The AI Chatbot for Spoken English Practice is an advanced educational tool designed specifically for students aiming to enhance their English-speaking skills. It is designed to simulate real-life conversations, providing a platform for students to practice spoken English in a comfortable and interactive environment. Equipped with scoring mechanisms, the chatbot can track students' progress over time, generating comprehensive reports that highlight individual strengths and areas needing improvement. Besides that, students’ English teachers may also see the results and report and they can give feedback to their students. By offering personalized feedback and targeted language exercises, this AI solution empowers students to develop fluency, pronunciation, and confidence in spoken English, ultimately fostering a more effective and engaging learning experience.

1. **The goal of AI solution**
2. **Target User**

The target users for the AI Chatbot for Spoken English Practice are students of all ages who seek to improve their English-speaking skills. This includes individuals at various proficiency levels, from beginners looking to build a foundation in spoken English to advanced learners aiming to refine their fluency and pronunciation. The chatbot is also beneficial for English language learners who wish to practise and enhance their conversational skills in a convenient and interactive manner.

1. **Problem Statement**

The problem this project addresses is the need for an effective and accessible platform to help students improve their spoken English skills. Many English learners struggle to find opportunities for regular and meaningful practice, which can hinder their progress and confidence in using the language in real-life situations. Traditional language learning methods often lack the interactivity and feedback necessary for targeted improvement.

The AI Chatbot for Spoken English Practice aims to solve this problem by offering a solution that:

1. Simulates Real-life Conversations: Provides an environment where students can engage in realistic dialogues, allowing them to practice spoken English in a comfortable setting.
2. Monitors Progress and Provides Feedback: Offers scoring mechanisms and generates comprehensive reports, enabling students to track their advancement, identify strengths, and pinpoint areas that require improvement. English teachers can also use these reports to provide personalized feedback to their students.
3. Monitors Progress and Provides Feedback: Offers scoring mechanisms and generates comprehensive reports, enabling students to track their advancement, identify strengths, and pinpoint areas that require improvement. English teachers can also use these reports to provide personalized feedback to their students.
4. **Process of Emphasize in DT**
5. **Process of Define in DT**

In the process of defining the AI Chatbot for Spoken English Practice within the Design Thinking framework, the team starts by empathizing with the users, recognizing the global demand for English proficiency today. Understanding the challenges faced by English learners, the team identifies the need for an effective and accessible platform for spoken English practice. The problem statement highlights the lack of opportunities for regular and meaningful practice, hindering students' progress and confidence. Moving into the Define phase, the team outlines specific goals, such as simulating real-life conversations, monitoring progress, providing personalized feedback, and enhancing confidence and fluency. The emphasis is on creating an immersive experience that mirrors real-world interactions and fosters a supportive environment for language practice. The objectives include not only addressing the professional demand for English proficiency but also recognizing its relevance in various aspects of life, from online learning to communication with diverse linguistic communities. The team envisions the AI Chatbot as a solution that goes beyond traditional language learning methods, offering a dynamic and interactive approach to meet the evolving needs of English learners at different proficiency levels.

1. **Problem**
2. **Suggested Solution**
3. **Knowledge Representation (KR)**

AI Chatbot Knowledge Representation (KR) for Spoken English Practice:

|  |  |  |
| --- | --- | --- |
| **KR Number** | **Logical Conditions** | **Response** |
| KR 1 | Simulated\_Conversations = TRUE | KR 1: Provides an environment for students to engage in realistic dialogues. |
| KR 2 | Progress\_Monitoring = TRUE  AND Comprehensive\_Reports = TRUE | KR 2: Enables students to track their advancement and identify strengths and areas for improvement. |
| KR 3 | Comprehensive\_Reports = TRUE  AND Teacher\_Access = TRUE | KR 3: Teachers can give personalized feedback based on students' performance. |
| KR 4 | Target\_Users = TRUE | KR 4: The AI solution caters to students at various English proficiency levels. |
| KR 5 | Practice\_Opportunities\_Lack = TRUE | KR 5: Addresses the need for an effective platform for consistent practice. |
| KR 6 | Traditional\_Methods\_Lack = TRUE | KR 6: Offers an interactive approach for targeted improvement. |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Simulated Conversations** | **Progress\_Monitoring** | **Comprehensive\_Reports** | **Teacher\_Access** | **Target\_Users** | **Practice\_Opportunities\_Lack** | **Traditional\_Methods\_Lack** | **Response** |
| TRUE | FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | KR 1 |
| Simulated\_Conversations AND NOT Progress\_Monitoring AND NOT Comprehensive\_Reports AND NOT Teacher\_Access AND NOT Target\_Users AND NOT Practice\_Opportunities\_Lack AND NOT Traditional\_Methods\_Lack | | | | | | | |
| FALSE | TRUE | TRUE | FALSE | FALSE | FALSE | FALSE | KR 2 |
| NOT Simulated\_Conversations OR Progress\_Monitoring OR Comprehensive\_Reports AND NOT Teacher\_Access AND NOT Target\_Users AND NOT Practice\_Opportunities\_Lack AND NOT Traditional\_Methods\_Lack | | | | | | | |
| FALSE | FALSE | TRUE | TRUE | FALSE | FALSE | FALSE | KR 3 |
| NOT Simulated\_Conversations AND NOT Progress\_Monitoring OR Comprehensive\_Reports AND Teacher\_Access AND NOT Target\_Users AND NOT Practice\_Opportunities\_Lack AND NOT Traditional\_Methods\_Lack | | | | | | | |
| FALSE | FALSE | FALSE | FALSE | TRUE | FALSE | FALSE | KR 4 |
| NOT Simulated\_Conversations AND NOT Progress\_Monitoring AND NOT Comprehensive\_Reports AND NOT Teacher\_Access AND Target\_Users AND NOT Practice\_Opportunities\_Lack AND NOT Traditional\_Methods\_Lack | | | | | | | |
| FALSE | FALSE | FALSE | FALSE | FALSE | TRUE | FALSE | KR 5 |
| NOT Simulated\_Conversations AND NOT Progress\_Monitoring AND NOT Comprehensive\_Reports AND NOT Teacher\_Access AND NOT Target\_Users AND Practice\_Opportunities\_Lack AND NOT Traditional\_Methods\_Lack | | | | | | | |
| FALSE | FALSE | FALSE | FALSE | FALSE | FALSE | TRUE | KR 6 |
| NOT Simulated\_Conversations AND NOT Progress\_Monitoring AND NOT Comprehensive\_Reports AND NOT Teacher\_Access AND NOT Target\_Users AND NOT Practice\_Opportunities\_Lack AND Traditional\_Methods\_Lack | | | | | | | |

1. **First Order Logic (FOL)**

**KR 1:**

∀student(Simulated\_Conversations(student))

**KR 2:**

∀student(Progress\_Monitoring(student)∧Comprehensive\_Reports(student))

**KR 3:**

∀student,teacher(Comprehensive\_Reports(student)∧Teacher\_Access(teacher)∧Personalized\_Feedback(teacher,student))

**KR 4:**

∀student(Target\_Users(student))

**KR 5:**

∀student(¬Practice\_Opportunities\_Lack(student))

**KR 6:**

∀student(¬Traditional\_Methods\_Lack(student))

1. **Asa**
2. **ssa**