Terms of Reference

1. ***Background:***

   Using ICT in Sinhala and Tamil has been enabled through ICTA's Local Language Initiative and by stakeholders. It is now possible to use Unicode Sinhala and Tamil on Windows, Linux and Mac Operating Systems: Unicode Sinhala and Tamil fonts are available. Keyboard drivers are available. Sorting is standardized. There are just a few more enablers that should be in place for this picture to be complete. One such necessity is a text to speech system.

   The objective is to develop a text-to-speech system specifically for Sinhala and Sri Lanka Tamil. A text-to-speech (TTS) system converts normal language text into speech. The quality of the speech synthesizer should be such that the output closely sounds like human speech, and the output is understood with ease. A speech to text system for Sinhala would also be developed.

   These would be especially useful for the visually impaired and would also be helpful to senior citizens in using computers and other devices.

2. ***Objective(s) of the Assignment:*** Enable text to speech for Sinhala and Sri Lanka Tamil and speech to text for Sinhala.

3. ***Scope of Services, Tasks to be carried out and Expected Deliverables:***

   3.1 Text to Speech:

   - Select the appropriate technology.

   - Develop text to speech module for Sinhala:

     o Should be able to recognize Unicode compliant Sinhala language text.

     o Sinhala Unicode compliant text input into a computer should be converted to speech which sounds natural and resemble spoken Sinhala.

     o It should be possible to convert text to speech, while being typed.

     o Voice to be intoned in correct Sinhala pronunciation similar to a human voice, and should be intelligible and understood clearly.

- Develop text to speech module for Tamil:

  o Should be able to recognize Unicode compliant Tamil language text.
  o Tamil Unicode text input into a computer should be converted to speech which sounds natural, and like spoken Sri Lankan Tamil.
  o It should be possible to convert text to speech, while being typed.
  o Voice to be intoned in correct and most widely used Sri Lankan Tamil pronunciation similar to a human voice, and should be intelligible and understood clearly.

- Develop final integrated product with screen reader.
- Draft a comprehensive user manual.
- The software should be provided as a service and should have REST API, which should have clean documentation and provided as a SDK.

3.2 Speech to Text:

- Select appropriate technology

- Develop speech to text software for Sinhala.

- Software to include commonly used English terms frequently used in colloquial Sinhala speech.

- Software should include an editable interface so that suggestions can be given for correcting spelling if necessary.

- Draft a comprehensive user manual.

- The software should be provided as a service and should have REST API, which should have clean documentation and provided as a SDK.

Text to Speech for Sinhala and Tamil

4. **Deliverables:**

Text to Speech	
a.	Text to speech module for Sinhala
b.	Text to speech module for Sri Lanka Tamil.
c.	Acoustic model created
d.	Final integrated product with screen reader; software available as a service.
e.	Comprehensive user manual with source code and technical documentation.
Speech to Text	
a.	Speech to Text software for Sinhala; Software available as a service. Closure report.
b.	Comprehensive user manual with source code and technical documentation.

5. *Qualification Requirements for the Consultant:*

Key Expert	Minimum qualifications	Minimum Experience
Team Leader.	A first degree in computer science or IT.	10 years experience in working the area of Unicode compliant local language computing. Experience in text to speech systems and speech to text systems in local languages.

Text to Speech for Sinhala and Tamil

IT staff	A first degree in computer science or IT. A degree in languages or linguistics.	5 years experience in working in Unicode local language IT. Experience in creating text to speech systems in local languages.
IT staff	A first degree in computer science or IT.	3 years experience in working in Unicode local language IT projects.

6. *Final outputs:*

The text to speech system for Sinhala and Sri Lanka Tamil with the screen reader delivered with source code in two DVDs. The technical documentation and the comprehensive user manual delivered as both a softcopy in a DVD and as a printout.

The speech to text system for Sinhala with the final report delivered with source code in two DVDs. The comprehensive user manual and technical documentation delivered as both a softcopy in a DVD and as a printout.

7. *Client's Input and Counterpart Personnel:*

Data, services and facilities to be made available to the Consultant by the Client:
Client will set up a review team with the necessary expertise to review the project while it is being developed and ensure quality assurance. The client will set up project review meetings as necessary.

8. *Composition of review committee and review procedure to monitor consultants work:*

The review team will comprise members with qualifications and expertise in:

- Experience in work relating to Unicode compliant local languages and ICT.

- Sinhala and Tamil language expertise.

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