Deep Learning framework for a personalised interaction between users and a medical pod
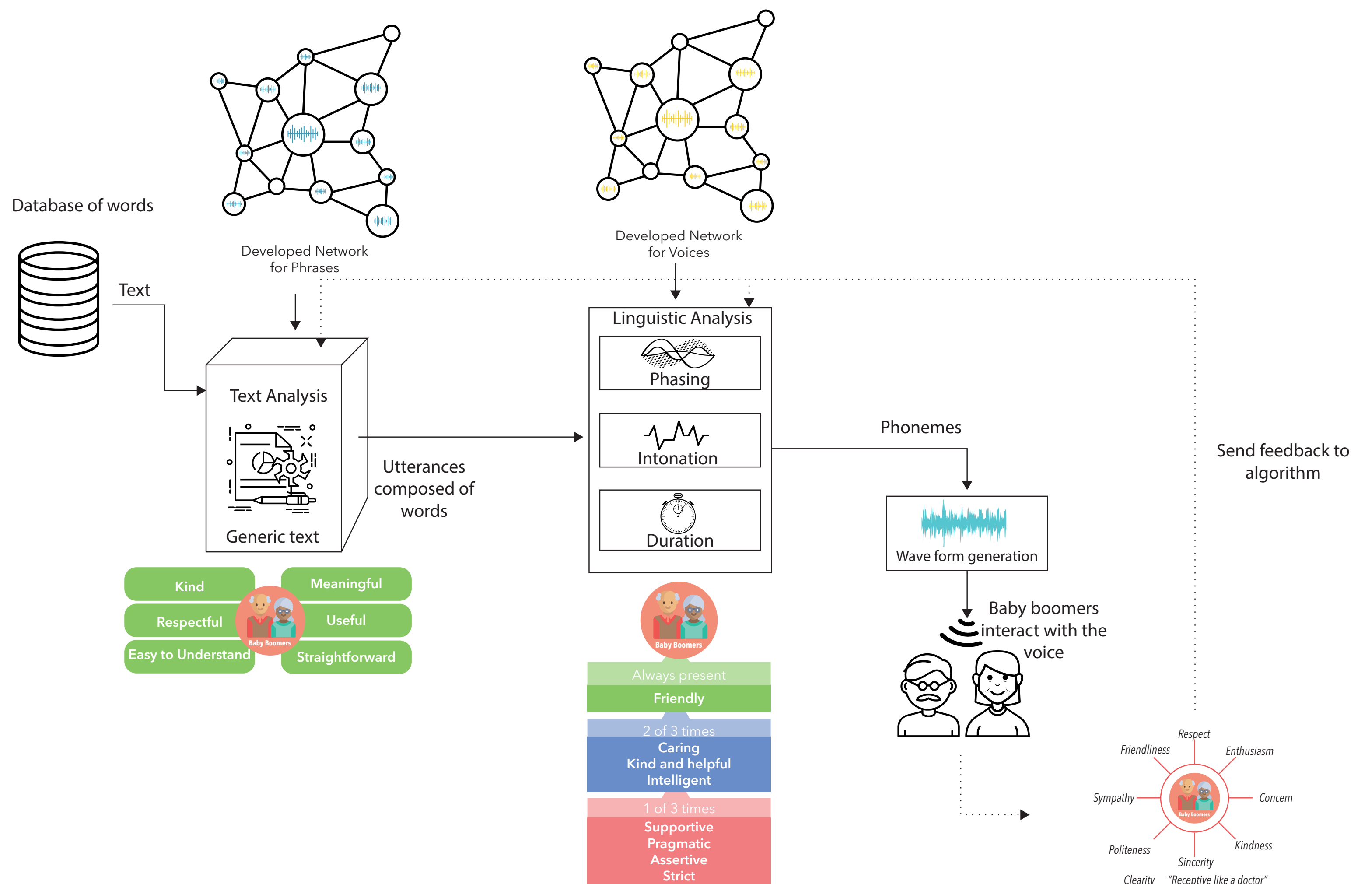
Project goal

The goal of this project is to define a personalised interaction between users and a voice activated intelligent medical pod called Ally.

Final Design

A deep learning framework that acts as a foundation to help build and define what an interaction between Ally and different generations (Baby Boomers, Generation X and Millennials) should be like.
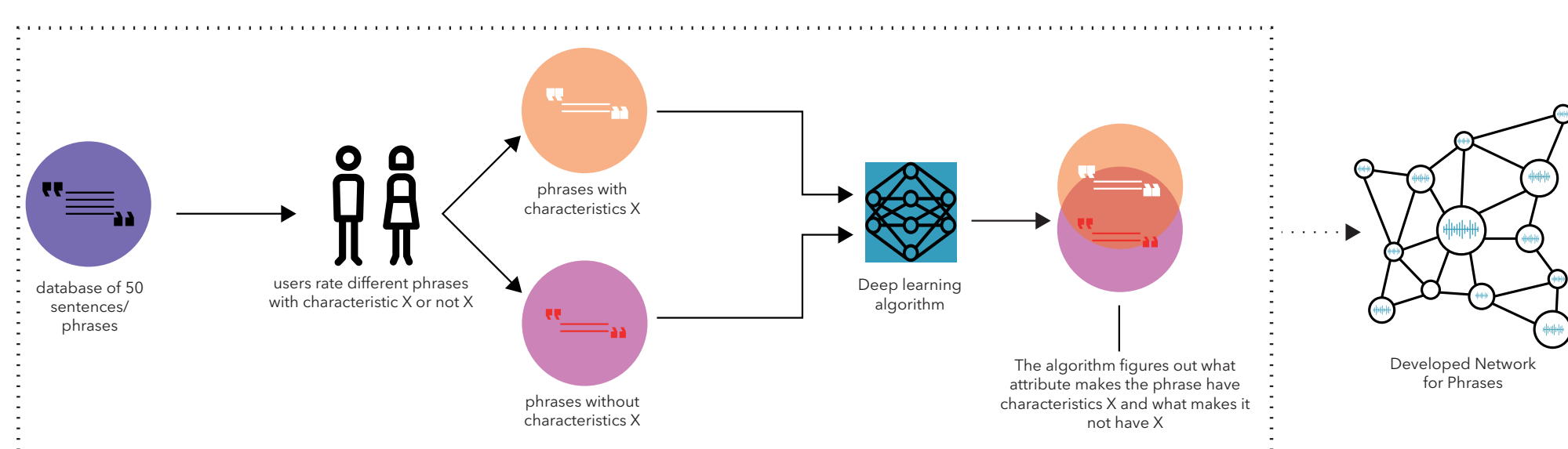
The Deep Learning Framework Ally's interaction with Baby Boomers

- Collection of a database of text is fed to the text analysis block.

- This is where the "content" of interaction created. The developed network for phrases and the features pertaining to the particular generation are fed here.

- Utterance of words that cater to the specific generation is generated and sent to the linguistic analysis block.

- Phasing, intonation and duration of voice is calculated here, based on the voice features catering to the particular generation.

- The decision of voice synthesis is made based on the information from the developed network for voices.

- Phonemes are created as output and a waveform of voice is generated, suited to speak to a particular generation.

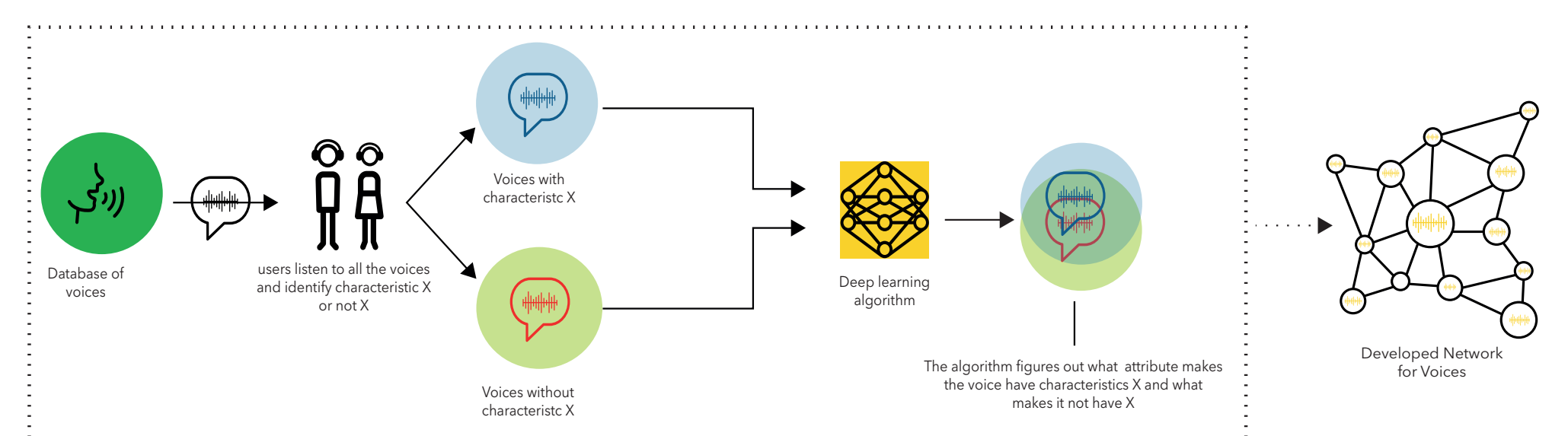- A feedback loop is created to improve the algorithm over time.

Database of words

Developed Network for Phrases

Text

Text Analysis

Generic text

Utterances composed of words

Developed Network for Voices

Linguistic Analysis

Phasing

Intonation

Duration

Phonemes

Wave form generation

Send feedback to algorithm

Baby boomers interact with the voice

Kind | Meaningful
Respectful | Useful
Easy to Understand | Straightforward

Always present
Friendly

2 of 3 times
Caring
Kind and helpful
Intelligent

1 of 3 times
Supportive
Pragmatic
Assertive
Strict

Friendliness · Respect · Enthusiasm · Sympathy · Concern · Politeness · Kindness · Sincerity · Clearity · "Receptive like a doctor"

Creating a Developed Network

Creating a developed network for phrases

database of 50 sentences/ phrases

users rate different phrases with characteristic X or not X

phrases with characteristics X

phrases without characteristics X

Deep learning algorithm

The algorithm figures out what attribute makes the phrase have characteristics X and what makes it not have X

Developed Network for Phrases

Creating a developed network for voices

Database of voices

users listen to all the voices and identify characteristic X or not X

Voices with characteristic X

Voices without characterisic X

Deep learning algorithm

The algorithm figures out what attribute makes the voice have characteristics X and what makes it not have X

Developed Network for Voices

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Defining Ally's Interaction: A deep learning framework to create a personalized interaction between users and a medical pod

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MSc Design for Interaction

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