



Oropharyngeal Rehabilitation and Optimization with Comprehensive Assessment and Resistance Exercise

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PROBLEM



OROPHARYNGEAL DYSPHAGIA

Over 30% of people aged above 65 experiences oropharyngeal dysphagia



ASPIRATION PNEUMONIA

11% of Dysphagia patient develops fatal Aspiration Pneumonia

SOLUTION



PERSONALIZED REHABILITATION

Increase swallowing muscle strength



TONGUE ASSESSMENT

Diagnosing dysphagia with tongue strength



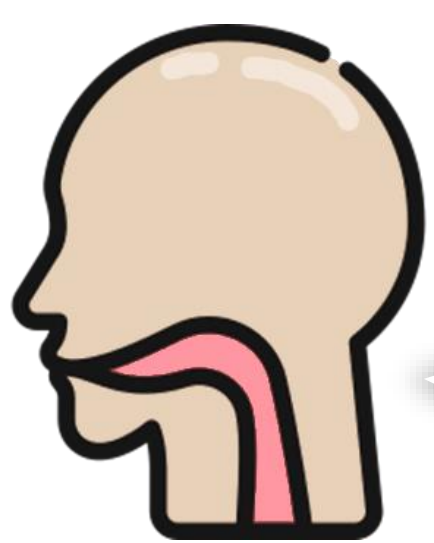
RECORDED PROGRESS

Biofeedback history for further medical care

FUNCTIONS

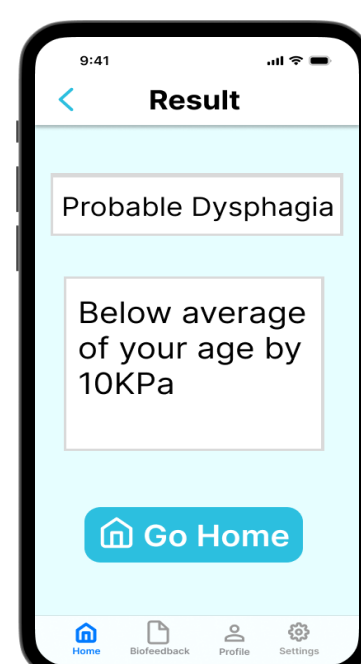
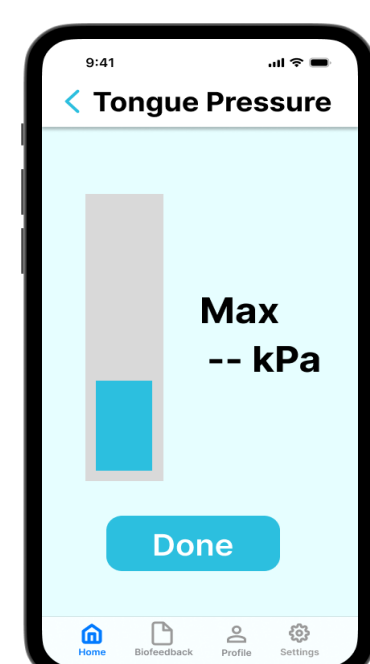
ASSESSMENT

Tongue, Lip, Suprahyoid Muscles Strength In KPa



Strength Training Principle **60-80% MaxStrength**

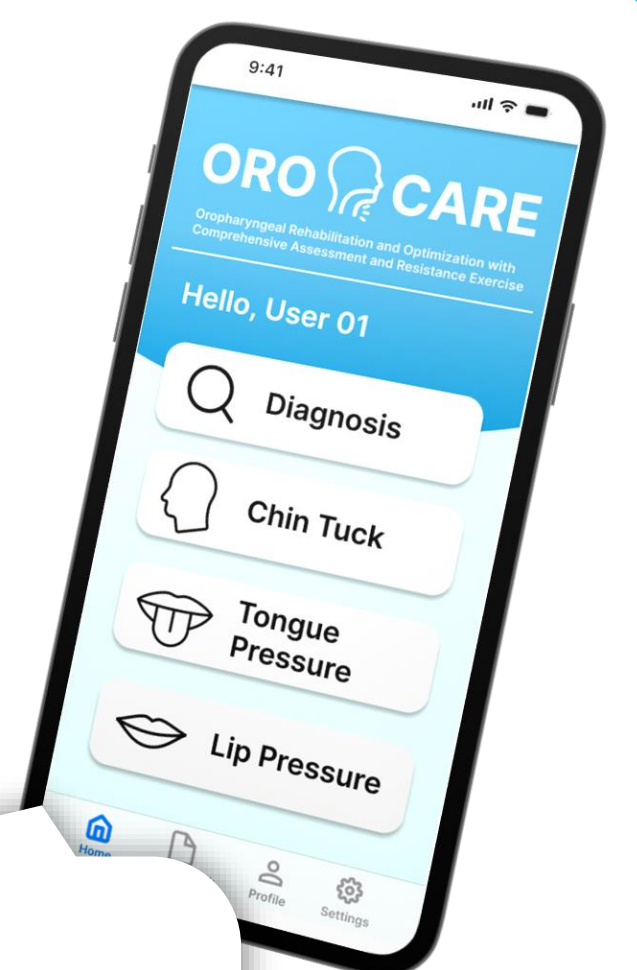
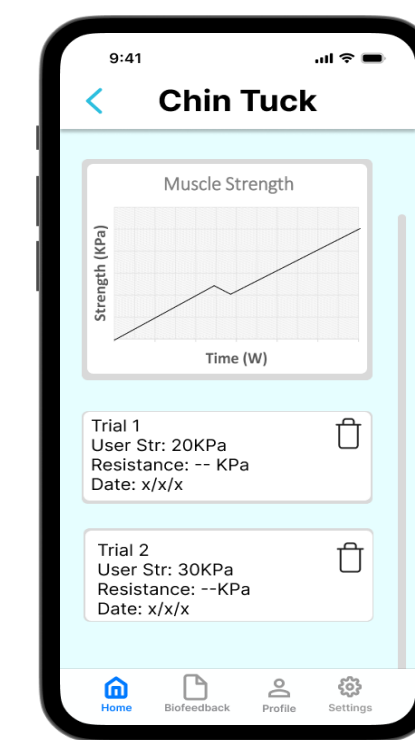
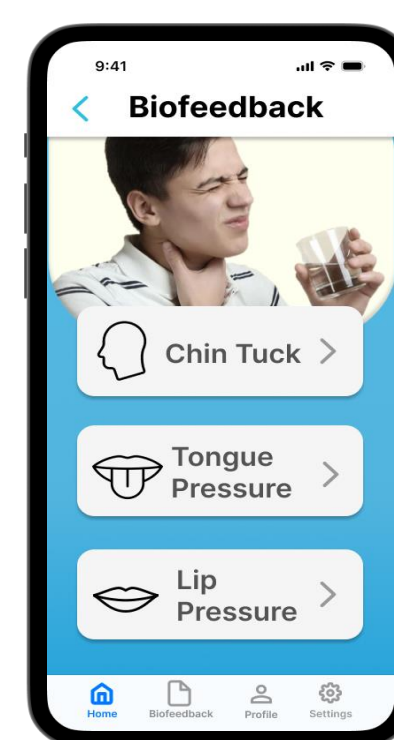
Tongue Diagnosis Strength Value



SOFTWARE

REAL-TIME FEEDBACK

Analyze pressure data and gives biofeedback though Software Application



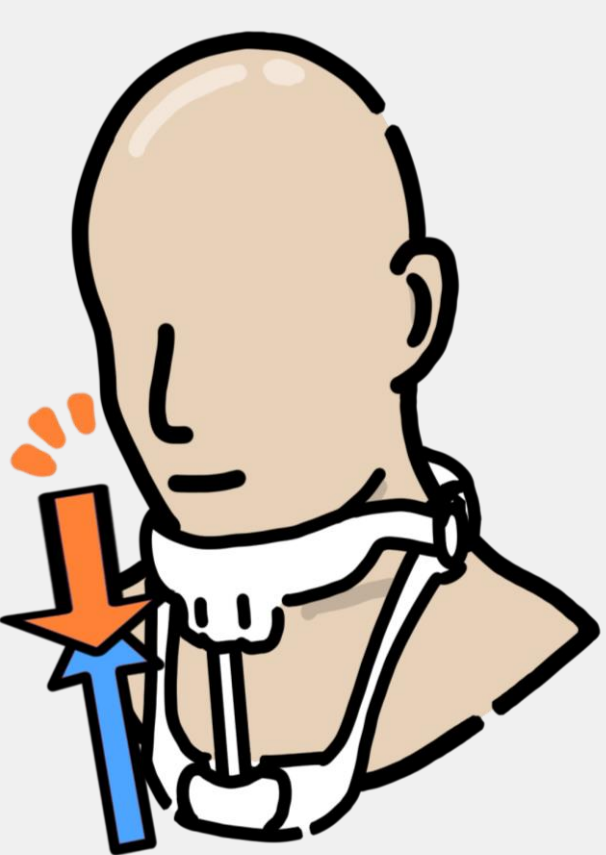
Receives Data from Bluetooth



REHABILITATION

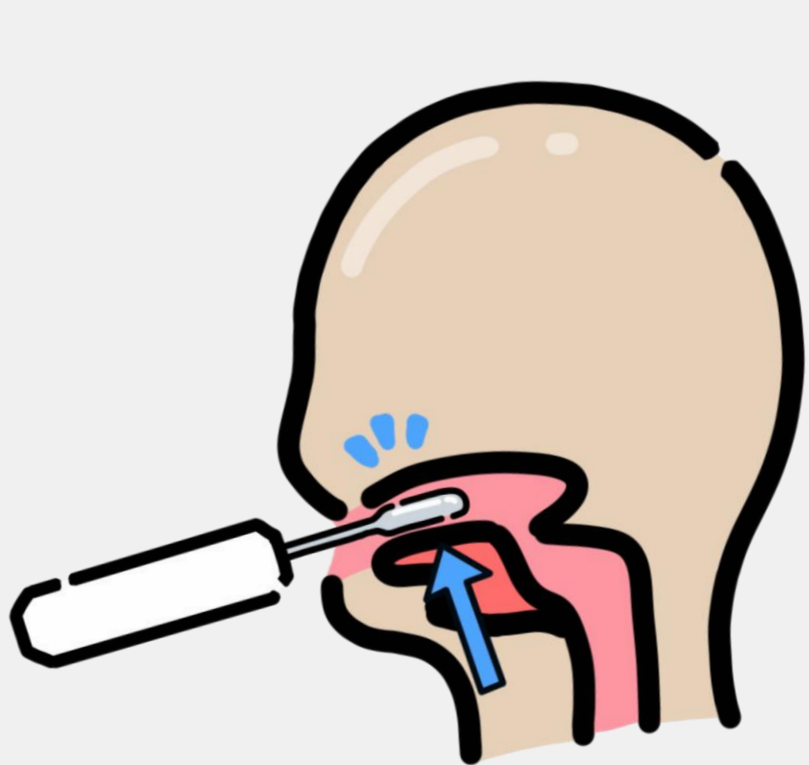
Resistance training with Chin Tuck Strap & Tongue bulb

Chin Tuck



UES Opening
Reduce Aspiration

Tongue Pushup

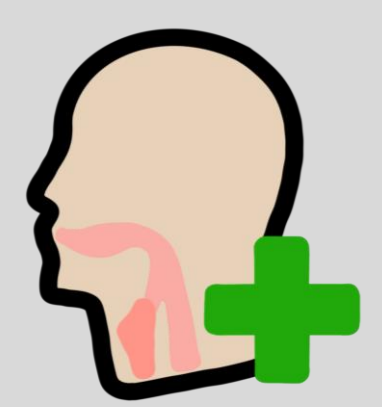


Bolus Formation
& Transportation

Lip Press



Oral Containment
& Suction

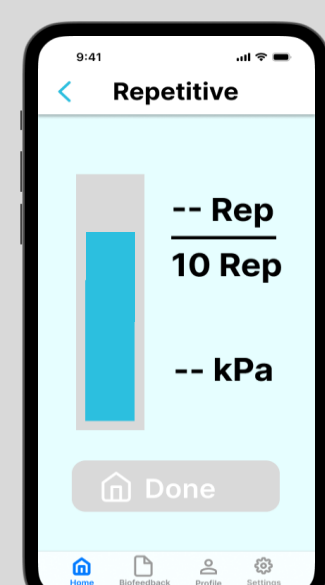
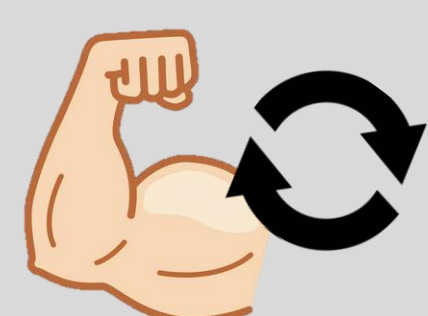


Reduce Choking

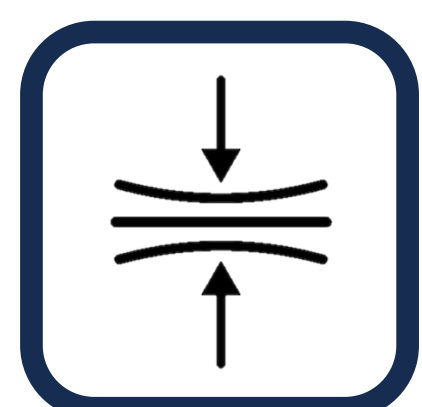
Strengthens Key Swallowing Muscles

Repetitive

Count Repetitions



Increase Muscle Strength



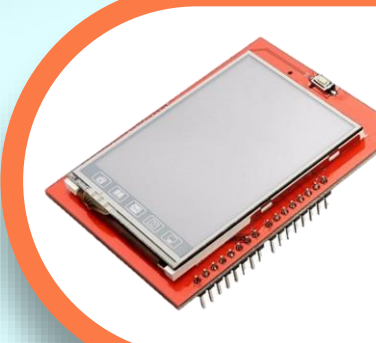
Resistance Training



Ergonomic design



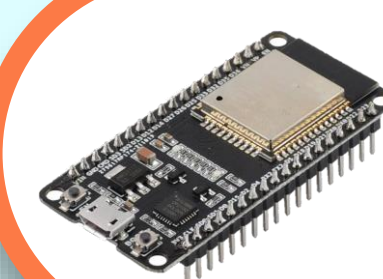
Pressure Sensor
Measure muscle strength in KPa



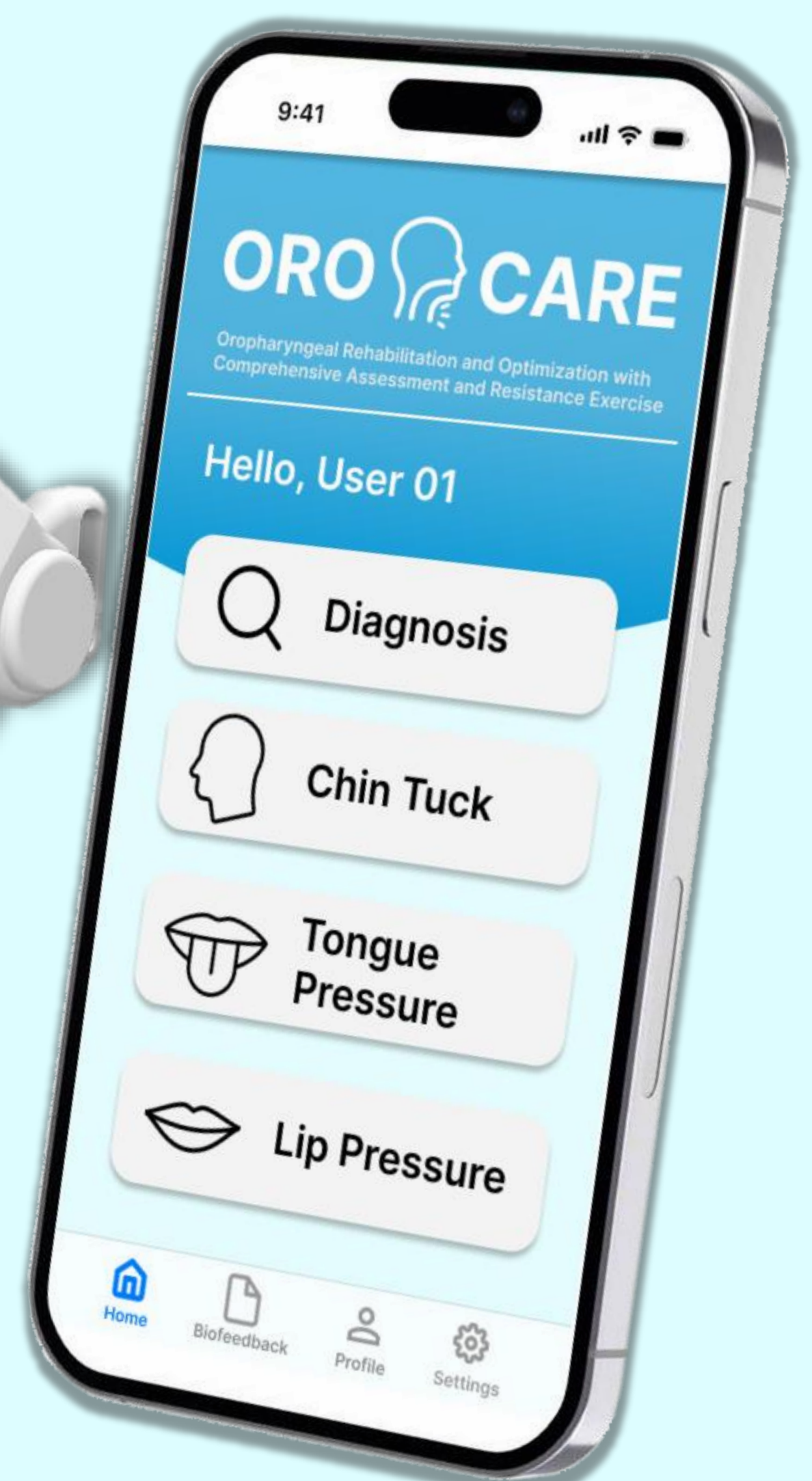
LCD screen
For OROCARE'S User Interface



Air pump
Increase resistance level for Chin tuck



ESP32
Micro Controller used in the circuit



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