



SEKOLAH MENENGAH SAINS BANTING

~ WHERE IDEA MEETS POSSIBILITY ~



SCENTAC

MEET THE TEAM!



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1. ABSTRACT

IN A WORLD ENGINEERED FOR SOUND, SILENCE CAN BE DISRUPTIVE. FOR MILLIONS OF DEAF AND HARD-OF-HEARING INDIVIDUALS, EVERYDAY ROUTINES—LIKE WAKING UP FOR SCHOOL, WORK, OR APPOINTMENTS—ARE OFTEN DISRUPTED BY THE EXCLUSIVE RELIANCE ON SOUND-BASED ALARM CLOCKS. AS THE WORLD HEALTH ORGANIZATION (2021) PROJECTS THAT NEARLY 700 MILLION PEOPLE WILL HAVE HEARING LOSS DISABLING BY 2050, THE NEED FOR INCLUSIVE DAILY TOOLS IS MORE URGENT THAN EVER. LANE, HOFFMEISTER, AND BAHAN (1996) STATE, “DEAF PEOPLE ARE NOT DISABLED BY THEIR EARS BUT BY SOCIETY’S FAILURE TO ACCOMMODATE THEIR DIFFERENCES.” OUR PROJECT ADDRESSES THIS NEED THROUGH A NON-AUDITORY, OLFACTORY-BASED ALARM SYSTEM THAT USES FAST-DISPERSING, ALERTING SCENTS LIKE PEPPERMINT AND CITRUS TO GENTLY WAKE USERS FROM SLEEP. GROUNDED IN RESEARCH ON SCENT PERCEPTION DURING SLEEP (E.G., ARZI ET AL., 2012), WE CONDUCTED A SURVEY WITH DEAF PARTICIPANTS TO ASSESS THE CONCEPT’S PRACTICALITY AND USER PREFERENCE. RESPONSES INDICATED STRONG INTEREST, HIGH PERCEIVED EFFECTIVENESS, AND GREATER COMFORT THAN VIBRATION OR LIGHT-BASED ALARMS. THIS PROJECT TRANSFORMS WAKING UP INTO AN INCLUSIVE, MULTISENSORY EXPERIENCE FOR EVERYONE.



2. PROBLEM STATEMENTS

- INEFFICIENCY OF TRADITIONAL ALARM CLOCKS TO WAKE UP DEAF PEOPLE
- TRADITIONAL METHODS OF AUTOMATED WAKE UP ALARMS DO NOT COMFORTABLE TO THOSE WHO HAVE HEARING DISABILITY
- NO PROPER ALARM CLOCK EXIST FOR HARD OF HEARING PEOPLE



3. COMPONENTS & TOOLS

- ARDUINO UNO R3, 1
- GROVE ATOMIZER, 1
- PROTOBOARD 30*70 MM, 2
- JUMPER WIRES & WIRES
- HL525 1 RELAY MODULE, 1
- SOLDERING IRON
- PILLIP AND FLATHEAD SCREWDRIVER
- ACRYLIC BOARD
- HANDSAW
- G-CLAMP



4. METHODOLOGY



RESEARCH & SURVEY

Addressing needs of deaf individuals, identification of key requirements



PROJECT SPECIFICATION

Determine the scope studies of our project which our objectives and further discussion



HARDWARE SELECTION

Arduino microcontroller and other components chosen and integrated into a functional circuit



PROGRAMMING

Programming the device to add several functions and making sure it functions perfectly



TESTING & REFINEMENT

Interactive refinements to improve functionality and usability



6. RESULTS

REPLACING CONVENTIONAL AUDITORY OR VIBRATION ALARMS WITH A GENTLE AROMA-TRIGGERED MECHANISM



SAFE, COMFORTABLE, AND USER-FRIENDLY ALTERNATIVE FOR WAKING DEAF USERS

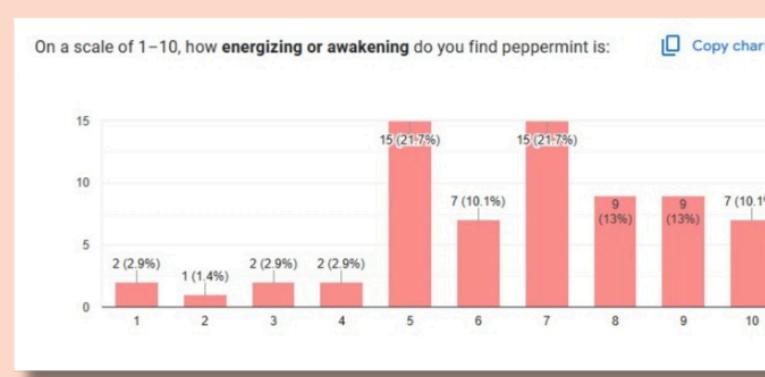
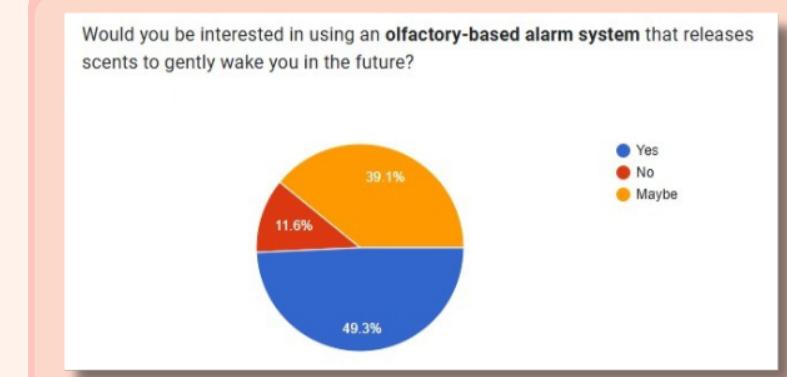
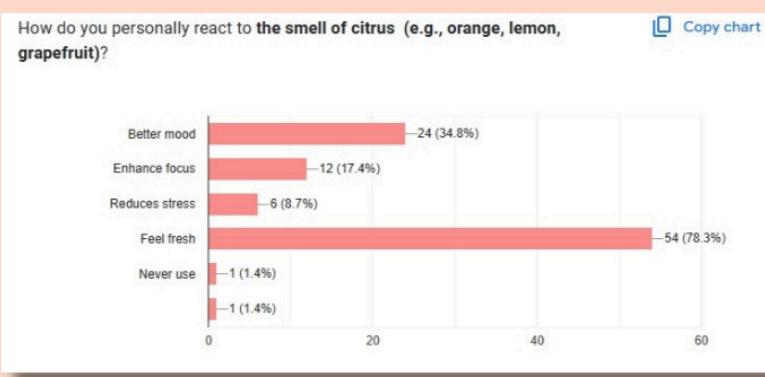
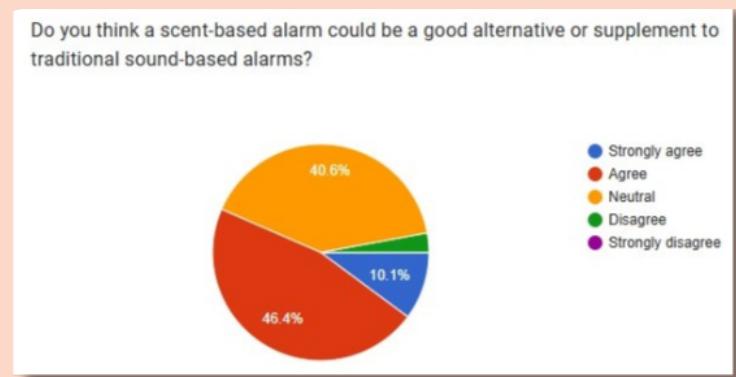


SCENT-BASED STIMULATION CAN SERVE AS A VIABLE ALTERNATIVE TO TRADITIONAL ALARMS, PARTICULARLY FOR INDIVIDUALS WITH HEARING IMPAIRMENTS

IMPROVING ACCESSIBILITY AND QUALITY OF LIFE FOR THE DEAF COMMUNITY



5. COMMERCIAL VALUE



- EASY TO USE
- HIGH QUALITY
- AFFORDABLE



- TARGET CONSUMERS :**
- DEAF PEOPLE
 - ELDERLY WITH HEARING LOSS
 - WELLNESS & LIFESTYLE CONSUMERS

7. FUTURE IMPROVEMENTS

SMART ALARM INTEGRATION



Integrating with smartphone apps or IoT platforms (Applications, Bluetooth or Wi-Fi), allowing users to conveniently set alarms, customize scent preferences, or even track sleep patterns.

MULTI-SCENT CARTRIDGE SYSTEM

Include multiple scent chambers, automatically rotating different aromas to prevent scent habituation and maintain effectiveness over time.