



ARQASHAN JAOQYMN

NAZARBAYEV INTELLECTUAL SCHOOL OF ASTANA

ILIAS S.
TALGAT E.
NURAKHMET KH.



INCLUSIVE URBAN MOBILITY

HOW CAN WE DESIGN HEALTH TECH AND URBAN SPACES THAT ENABLE NEURODIVERSE CHILDREN TO NAVIGATE CITIES SAFELY, INDEPENDENTLY, AND CONFIDENTLY?

ASTANA, KAZAKHSTAN

MEET OUR TEAM



SERIK ILIYAS



TALGAT ERNAR



KHAMIDOLLA NURAKHMET



JAQYN



GLOBAL PROBLEM

- A SURVEY FOUND THAT 49% OF CHILDREN WITH ASD HAD AT LEAST ONE ATTEMPT TO LEAVE A SAFE PLACE AFTER AGE 4, AND FOR 26%, IT LASTED LONG ENOUGH TO CAUSE CONCERN FOR PARENTS - PMC, 2012
- PARENTS OFTEN CITE URBAN ENVIRONMENTS AS TRIGGERS FOR SENSORY OVERLOAD—NOISE, CROWDS, VISUAL CHAOS—AS FACTORS THAT CAUSE STRESS IN CHILDREN WITH ASD - TAYLOR AND FRANCIS, 2022
- IT IS EMPHASIZED THAT THE SENSORY QUALITY OF THE ENVIRONMENT AND ITS PREDICTABILITY ARE KEY FACTORS INFLUENCING HOW COMFORTABLE PEOPLE WITH ASD ARE IN MOVING AROUND SPACE - LAND, 2024

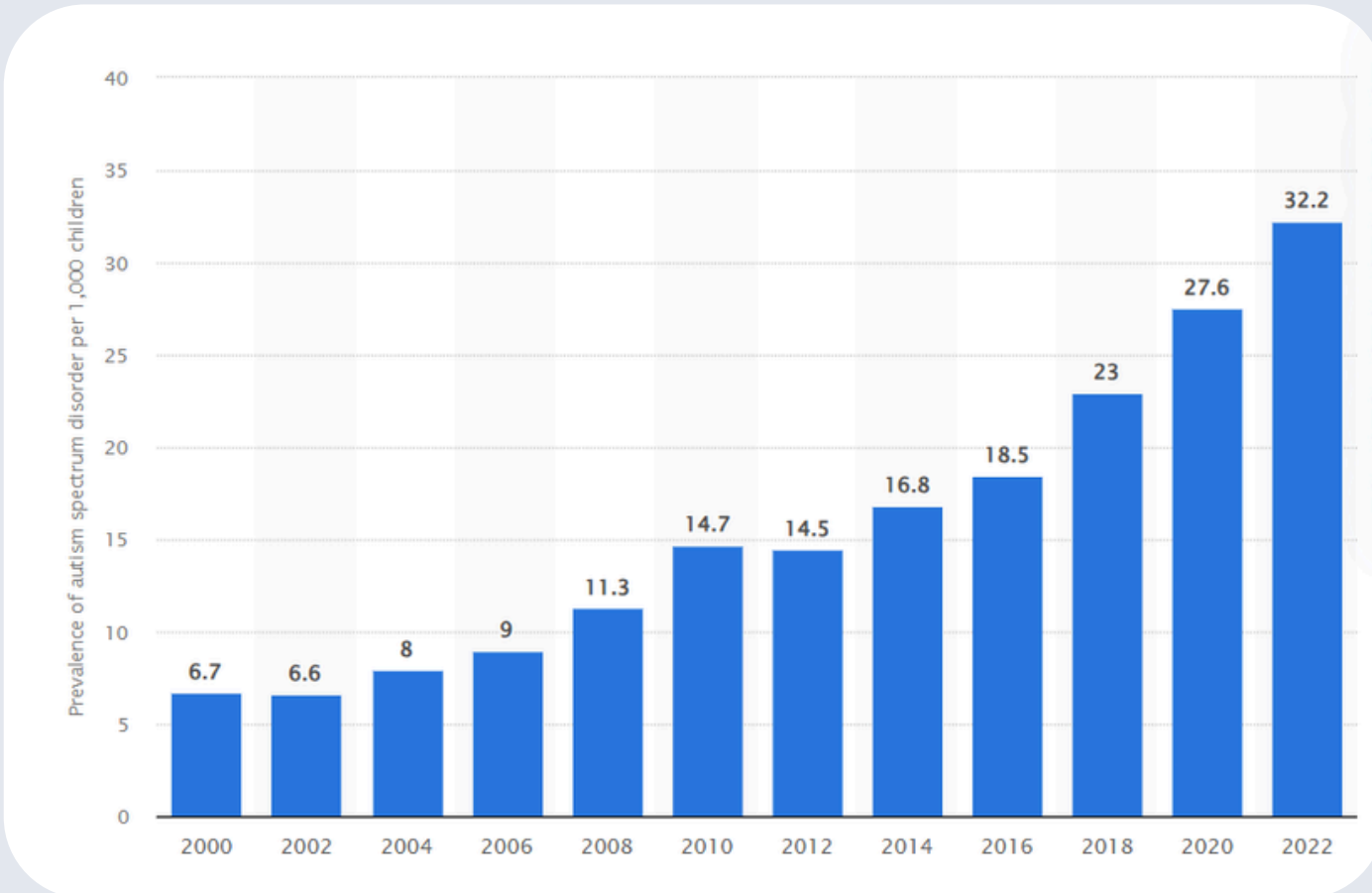


FIGURE 1. PREVALENCE OF AUTISM SPECTRUM DISORDER IN THE U.S. FROM 2000 TO 2022. STATISTA, 2025.

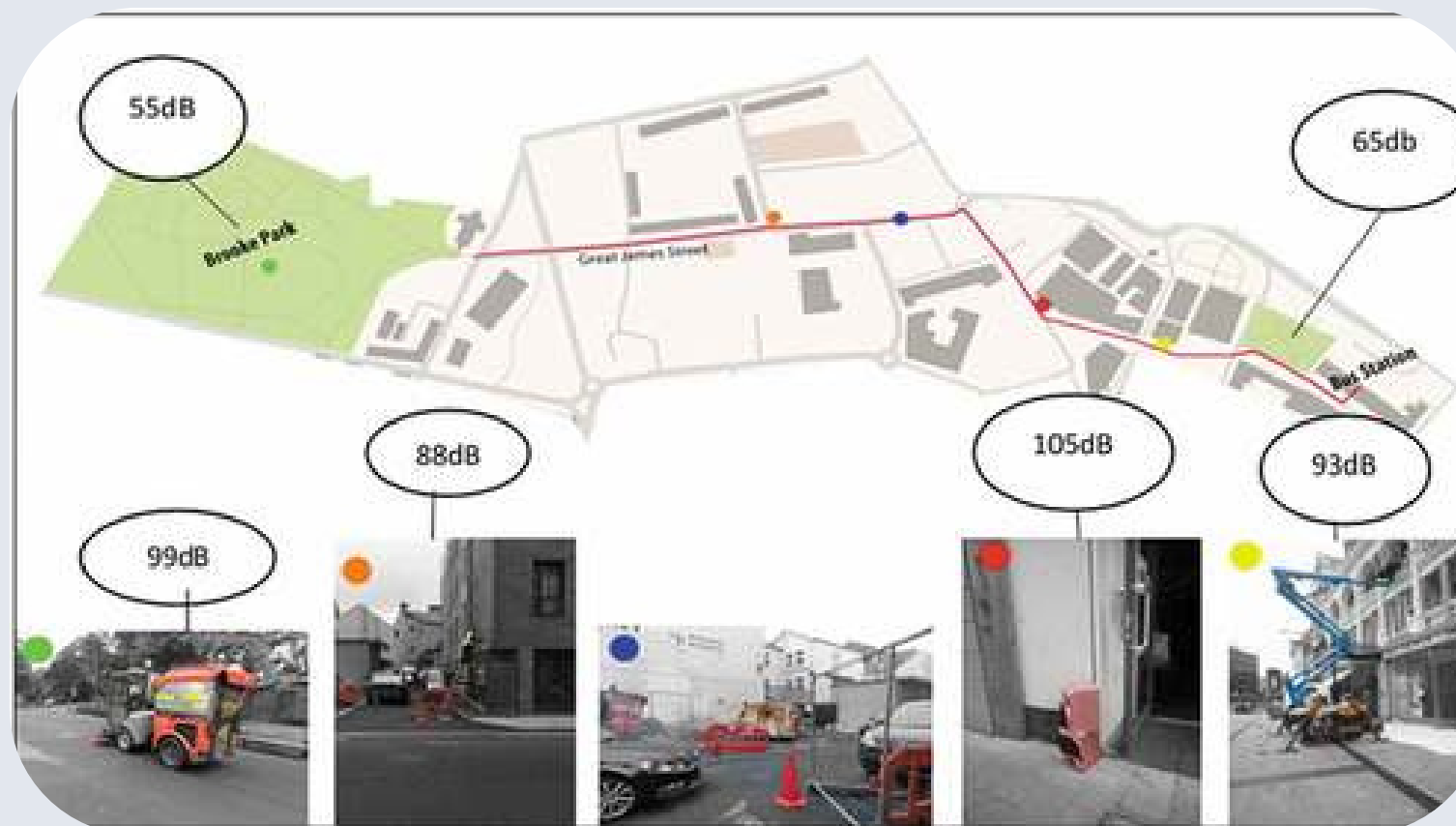


FIGURE 2. TRIGGERS IN THE URBAN ENVIRONMENT. TAYLOR AND FRANCIS ONLINE, 2022.

ВНИМАНИЕ! ПРОПАЛ ЧЕЛОВЕК!

Базарұлы Жантөре
11.09.2012 г.р.
Казахстан, г. Астана

Дата пропажи:
06.12.2025 г.

Обстоятельства:
Ориентировочно в 13:30 вышел из дома по ул. Нажимеденова, д.10. Дальнейшее местонахождение неизвестно.

Приметы: Рост 150-155 см, среднее телосложение, глаза черного цвета.

Одежда: Куртка с капюшоном зеленого цвета, спортивные брюки черного цвета, кроссовки черного цвета.

ДЕЗОРИЕНТИРОВАН! СТРАДАЕТ АУТИЗМОМ

+7 747 917 54 17,
+7 771 233 44 40
либо 9102

@_astana_volonter_ LIDER.KZ

Всем, кто обладает информацией о данном человеке, просьба сообщить по указанным телефонам

ВНИМАНИЕ! ПРОПАЛ ЧЕЛОВЕК!

Сағындық Ерқанат Ерболұлы,
29.04.2012 г.р.
Казахстан, г. Астана

Дата пропажи:
17.07.2025 г.

Обстоятельства:
Ориентировочно в 19:40 вышел из дома по ул. Мустафина, д. 21/4 и не вернулся. Дальнейшее местонахождение неизвестно.

Приметы: Рост 140-145 см, худощавого телосложения, карие глаза, короткие темные волосы

Одежда: Белая футболка, черные шорты, черные резиновые сланцы

ДЕЗОРИЕНТИРОВАН, СОСТОИТ НА УЧЕТЕ В ПСИХ ДИСПАНСЕРЕ

+7 775 912 66 20,
+7 747 917 5417,
либо 9102

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Всем, кто обладает информацией о данном человеке, просьба сообщить по указанным телефонам

FROM IDEA TO MVP: MISSION AND OBJECTIVES



TO CREATE A SYSTEM THAT HELPS CHILDREN WITH ASD NAVIGATE THE CITY SAFELY AND CONFIDENTLY, REDUCING ANXIETY AND MAINTAINING CONNECTION WITH THEIR PARENTS.

CONDUCT FIELD TESTS OF THE MVP PRODUCT AND LAUNCH A PILOT IN ASTANA

LAUNCH AN INCLUSIVE APP THAT IS ACCESSIBLE AND UNDERSTANDABLE FOR BOTH CHILDREN AND PARENTS IN THE APP STORE AND GOOGLE PLAY

CONDUCT A DETAILED STUDY ON THE BEHAVIOR OF CHILDREN WITH RACES.

FULLY INTEGRATE AI FOR PREDICTIVE AND ANALYTICAL FUNCTIONS.

PROVIDE TWO-WAY COMMUNICATION BETWEEN CHILD AND PARENT AT ANY TIME.

TO INCREASE THE LEVEL OF INCLUSIVENESS OF THE URBAN ENVIRONMENT.

VIBRATIONAL SIGNALS ARE THE MOST EFFECTIVE FORM OF TACTILE COMMUNICATION, WHICH IS WHY WE CHOSE VIBRATION MOTORS AS A METHOD OF CALMING AND NAVIGATION.

SO WE STARTED OUR JOURNEY BY RESEARCH, THEN DEVELOPING OUR PROTOTYPE (NEXT SLIDE)

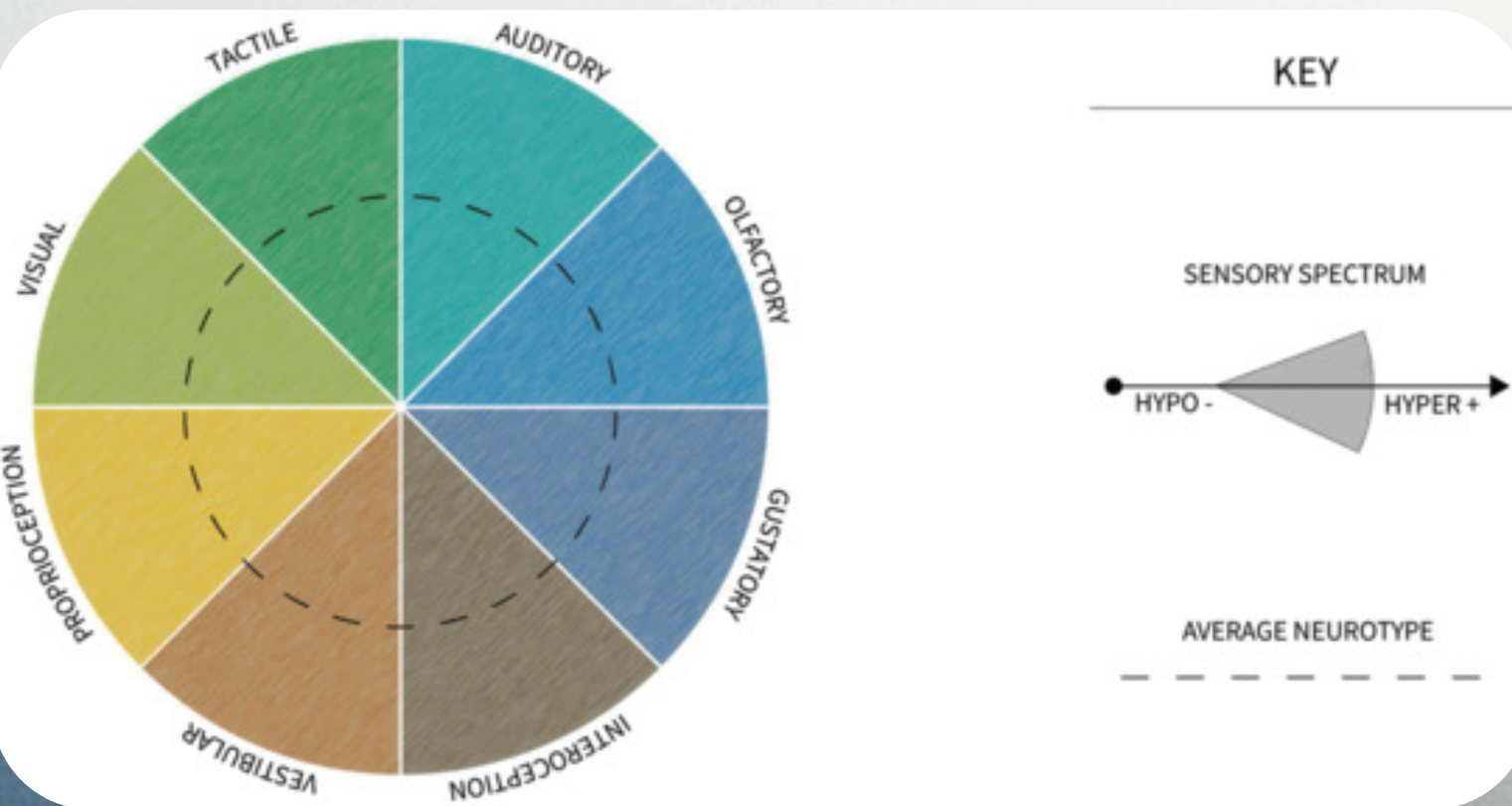
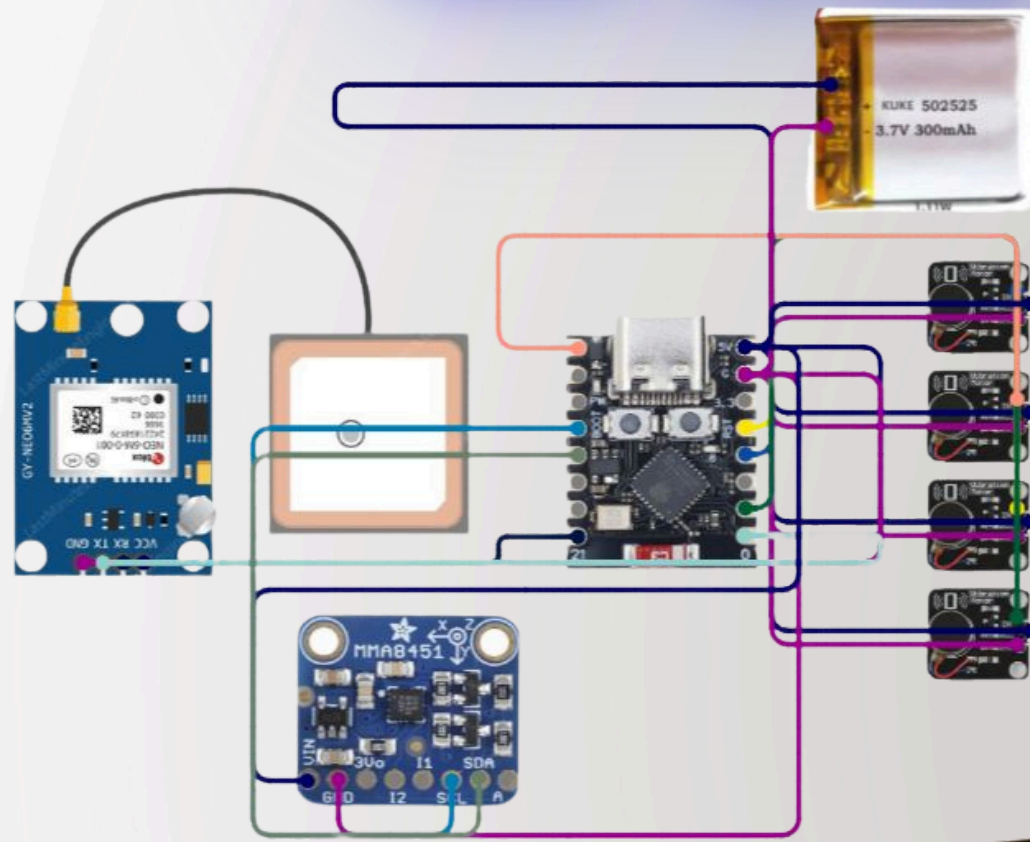


FIGURE 3. SENSORY-SENSITIVE ENVIRONMENT BETWEEN THE BUILT ENVIRONMENT AND SENSORY SENSITIVITY. MDPI, 2024

FIGURE 4. VIBRATION MOTORS



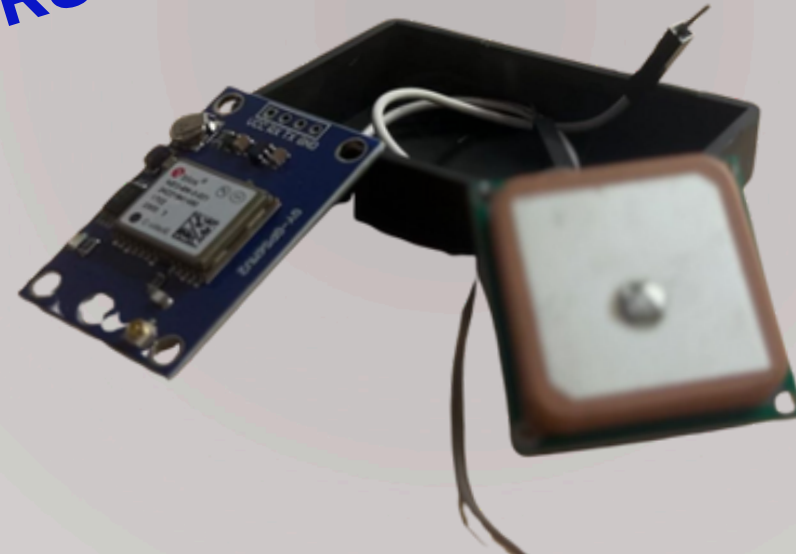
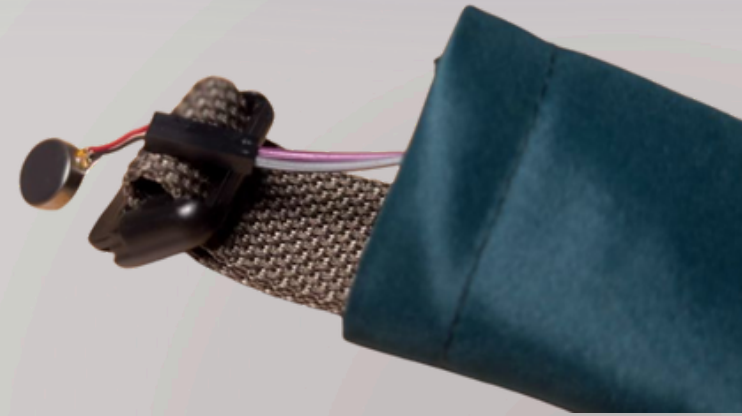
JAQYN ECOSYSTEM



SENSORS

MICROCONTROLLER XIAO NRF52840 SENSE

VIBROMOTORS



BODY TEMPERATURE, PULSE RATE AND HUMIDITY SENSORS, A BUILT-IN ACCELEROMETER AND A GPS TRACKER ALLOW FOR COMPLETE MONITORING OF YOUR LOCATION AND HEALTH.

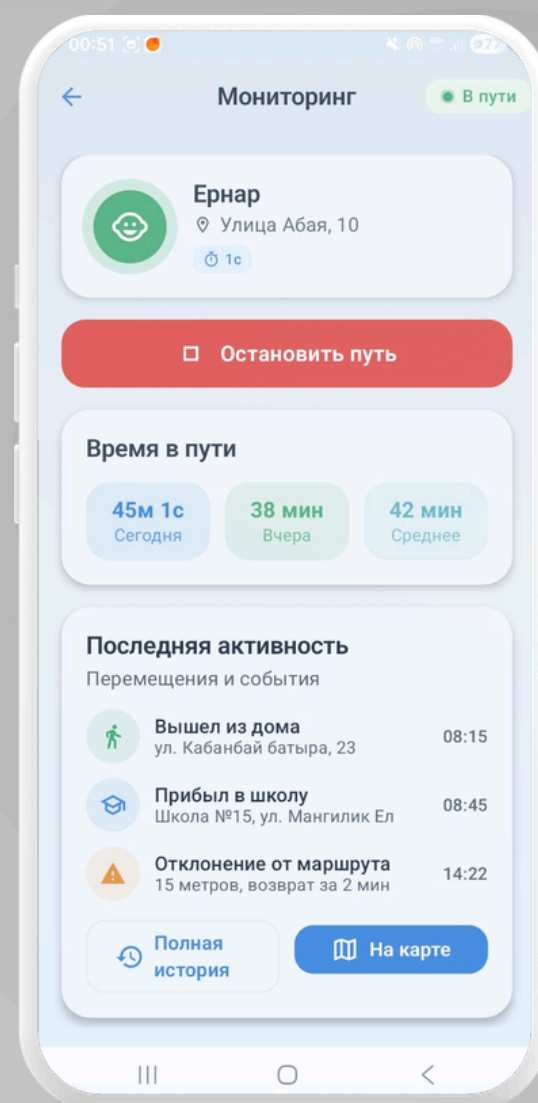
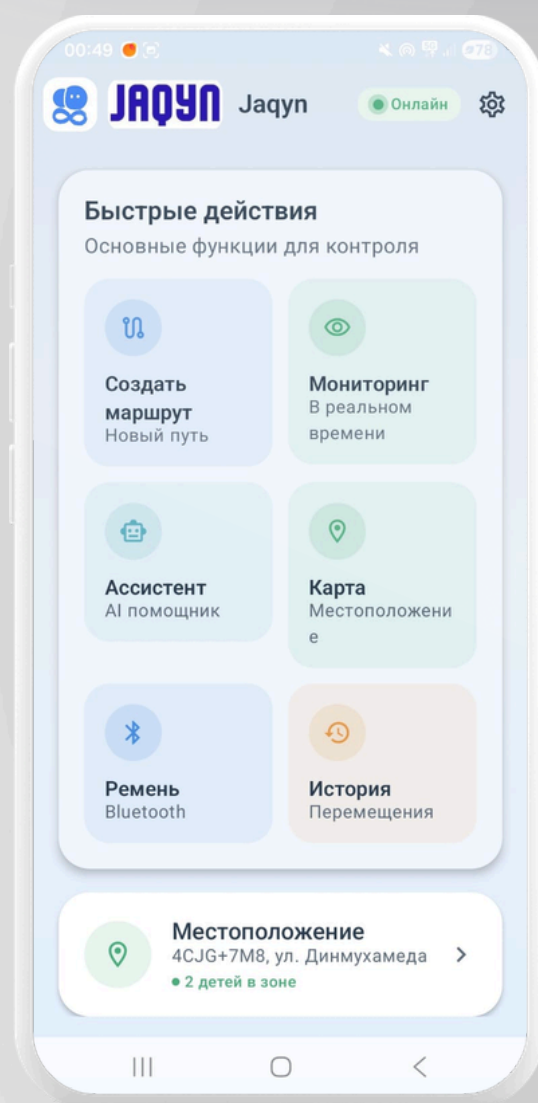
VIBRATORS SEND A TACTILE SIGNAL TO CALM THE CHILD AND GUIDE HIM ON DIFFICULT TURNS: IF IT NEEDS TO TURN RIGHT, VIBRATORY SIGNALS ARE SENT TO THE RIGHT, IF IT NEEDS TO TURN LEFT, SIGNALS ARE SENT TO THE LEFT, ETC.

WE CHOSE THE WAIST BELT, BECAUSE ACCORDING TO RESEARCH, THE WAIST ZONE IS THE MOST SENSITIVE ZONE IN NEUROTYPIC CHILDREN ALSO, THE BELT CAN BE WORN BOTH UNDER AND ON CLOTHES FOR SELF-EXPRESSION (ALSO WITH THE HELP OF SUBSEQUENT CUSTOMIZATION)

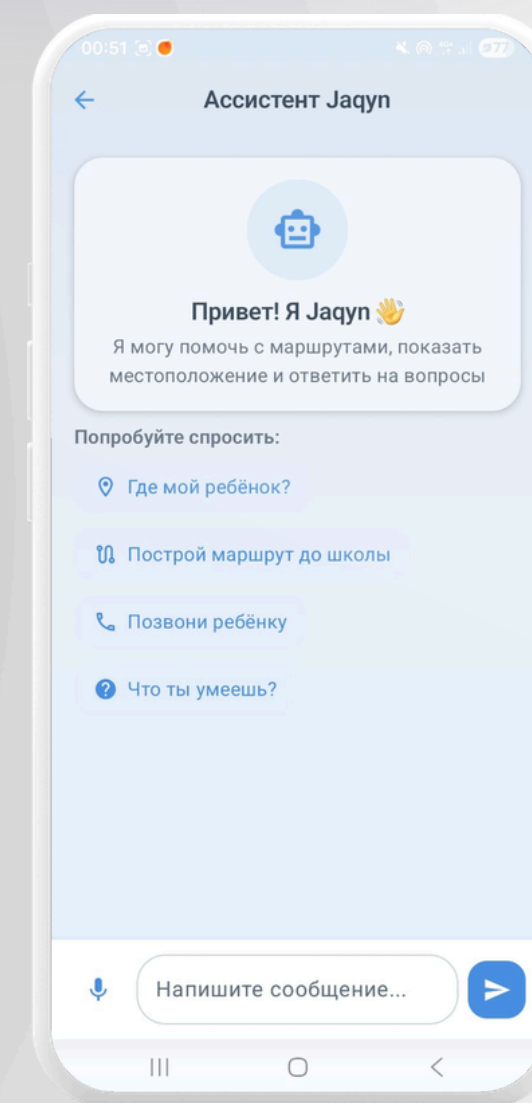
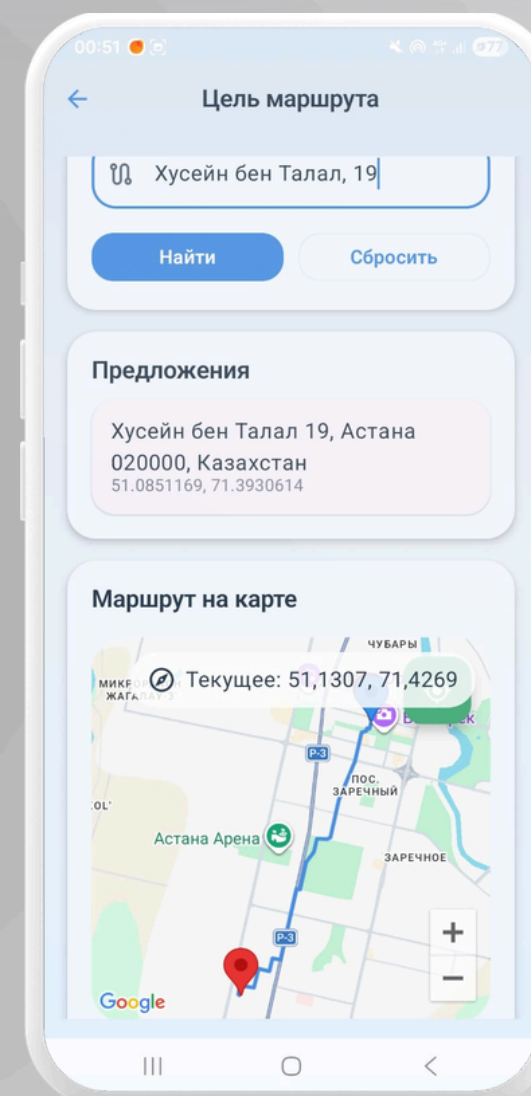


JAQYN ECOSYSTEM

PARENTS' VERSION



KIDS' VERSION



AFTER CREATING A PHYSICAL PRODUCT, WE FOCUSED ON SOFTWARE, DEVELOPING OWN ML MODEL, AI ASSISTANT AND THE MOBILE APPLICATION

THE APPLICATION CONSISTS OF TWO VERSIONS: FOR PARENTS AND CHILDREN WITH A SPECIAL INTERFACE FOR NEUROTYPIC PEOPLE

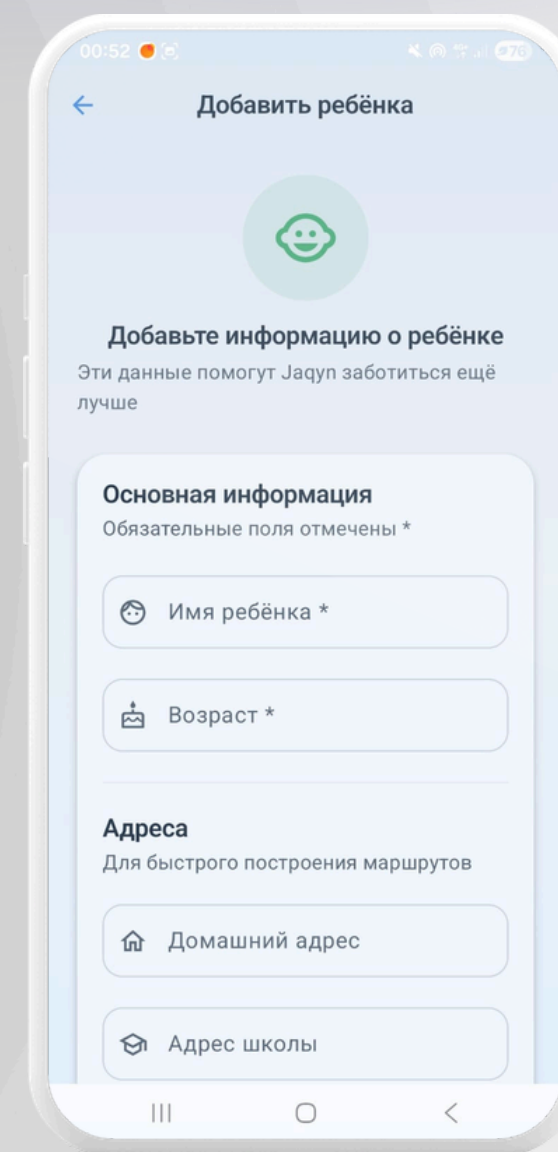
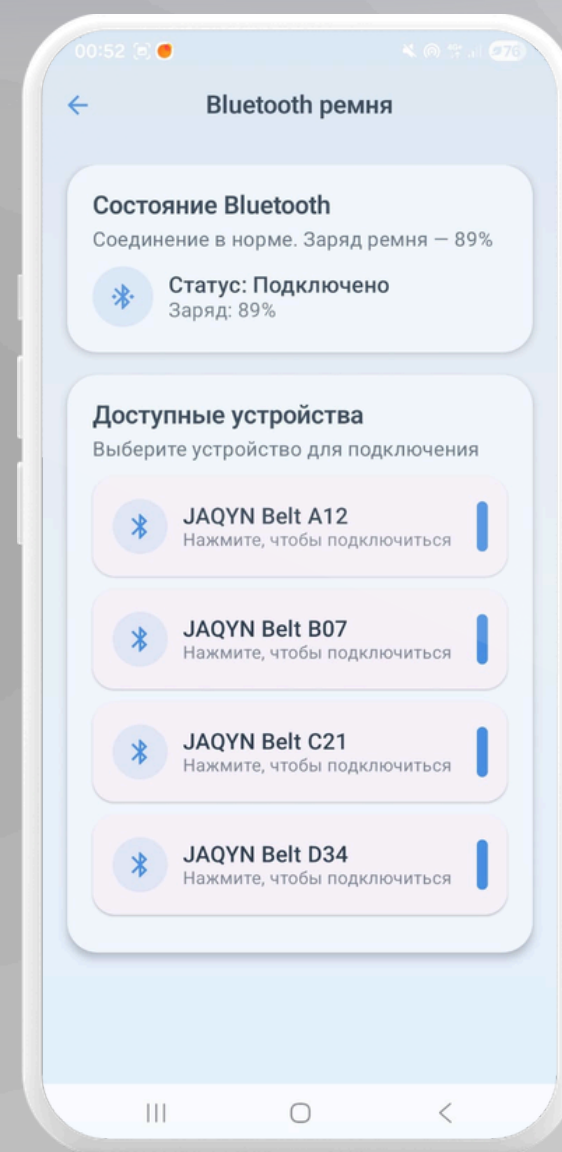
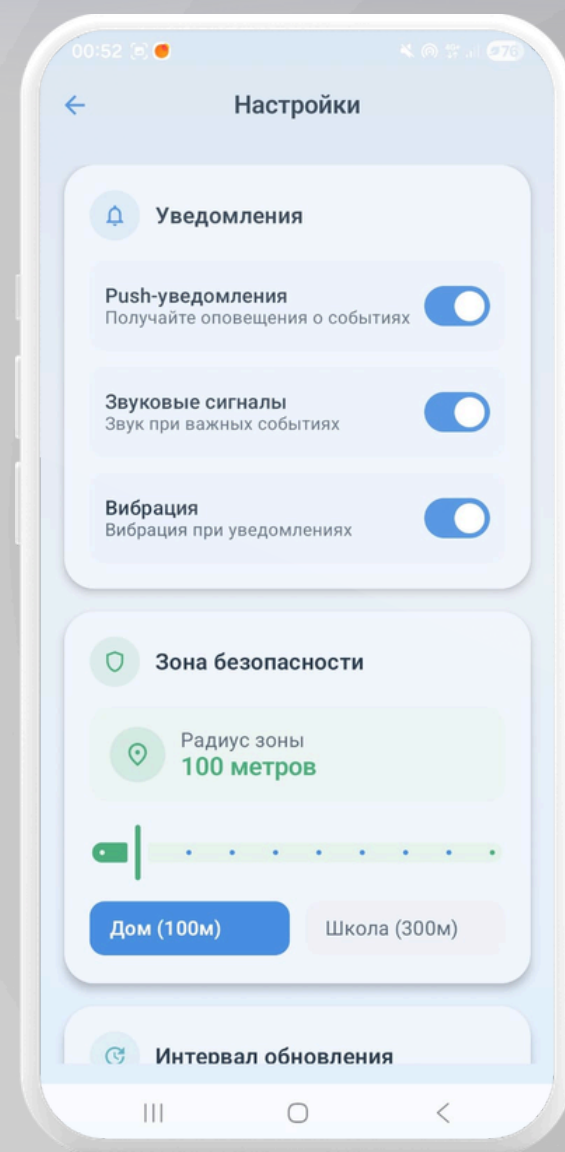
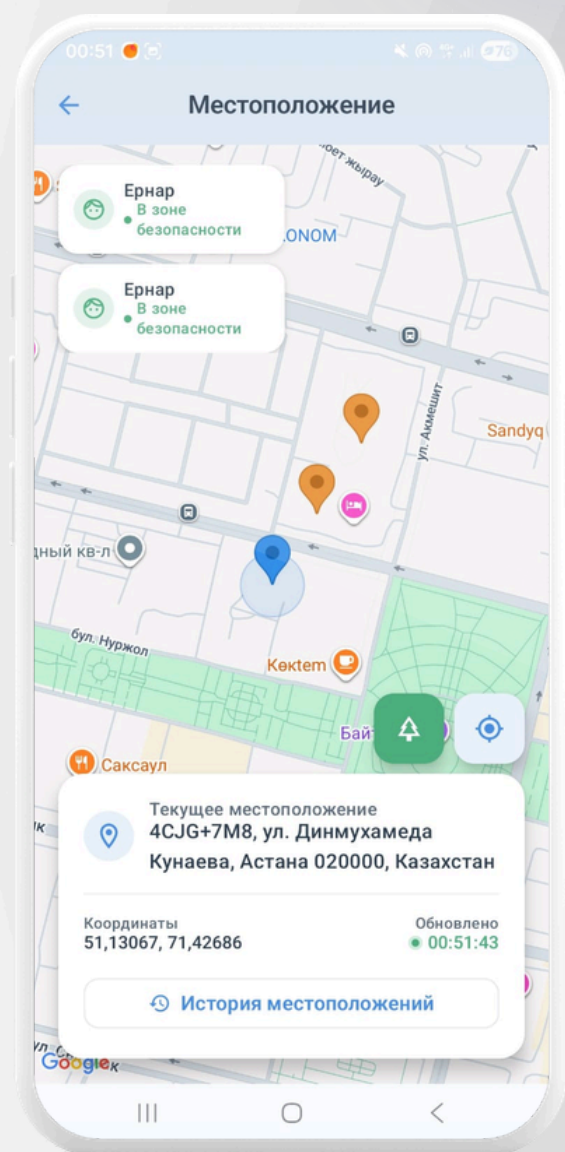
PARENTS MONITOR THEIR CHILD'S CONDITION 24/7 - LOCATION, TRAVEL TIME AND DEVIATIONS, PULSE, STRESS AND ANXIETY LEVEL

AI BUILDS THE SAFEST ROUTE TAKING INTO ACCOUNT TRAFFIC, NOISE, AND OTHER TRIGGERS.

THE CHATBOT CREATES A ROUTE, SHOWS WHERE THE CHILD IS, ALLOWS PARENTS TO QUICKLY CONTACT THE CHILD BY PHONE, AND IT CALMS THE CHILD WITH BREATHING TECHNIQUES AND ALLOWS THEM TO CONTACT THE PARENTS BY PHONE OR BY PRESSING THE "SOS" BUTTON.



JAQYN ECOSYSTEM



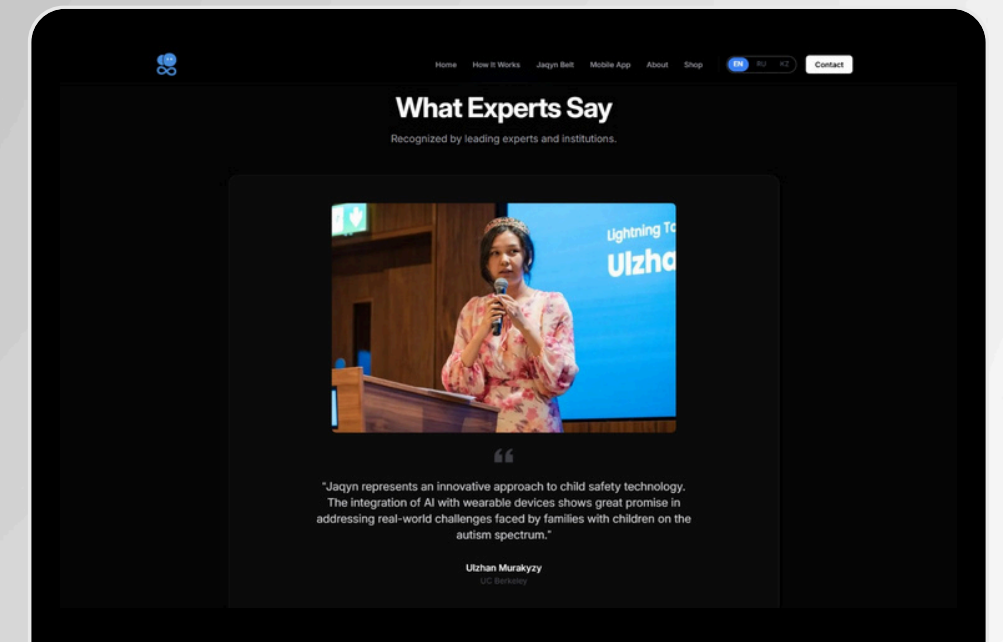
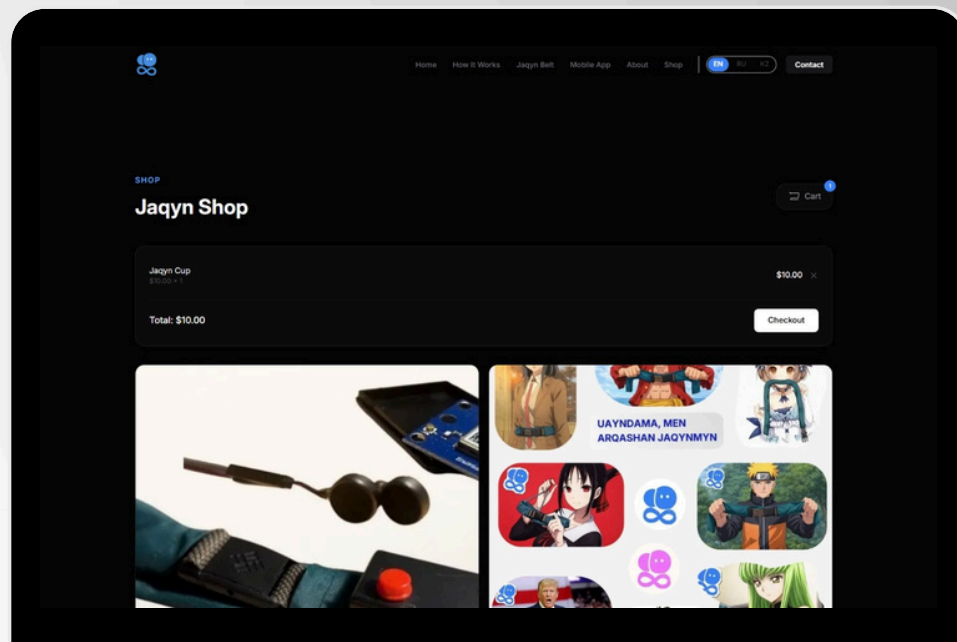
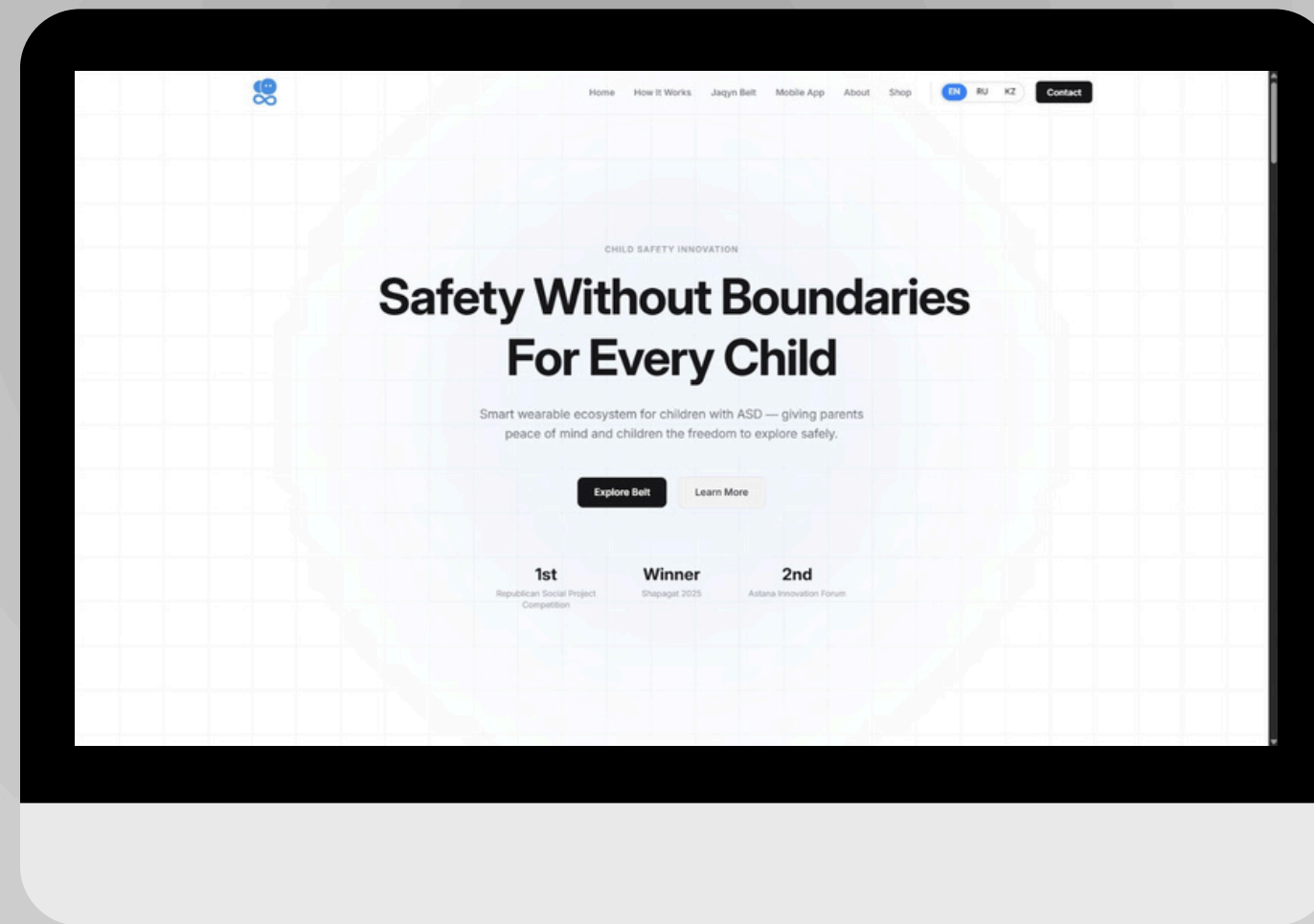
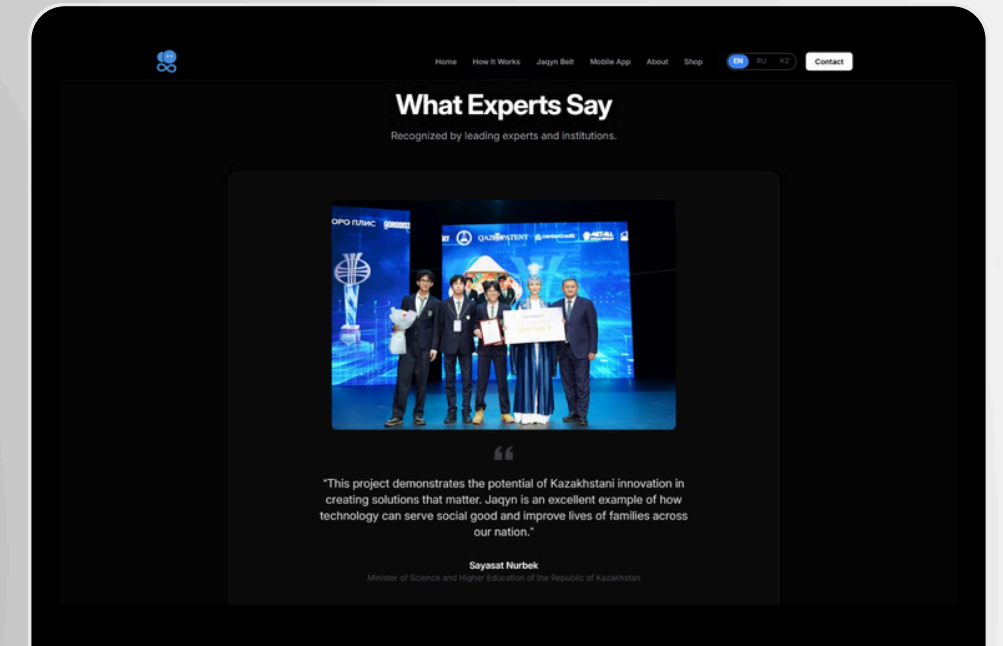
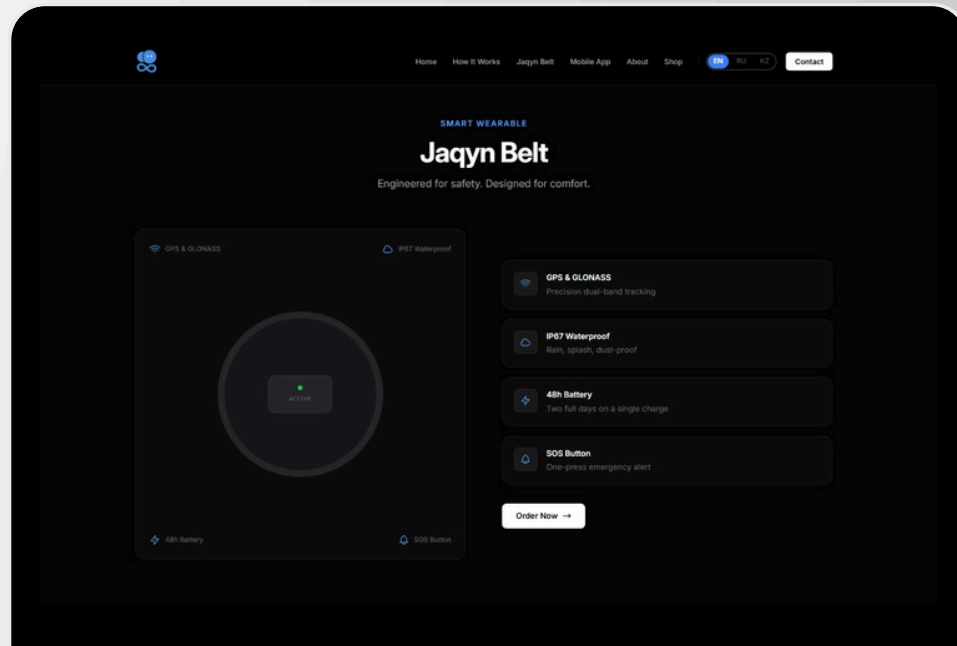
THE MAP SHOWS THE MARKS WITH CHILDREN'S LOCATION, ROUTE, AND CONDITION. ALSO, THE MAP CONTAINS MARKERS WITH "SAFE ZONES" WHERE CHILDREN CAN GO IN THE CASE OF SEVERE ANXIETY - SCHOOLS, HOSPITALS, AND PARTNERSHIP STATIONS AROUND THE CITY FOR CHILDREN WITH ASD.

PARENTS CAN ADD THEIR CHILDREN TO THE APP AND PAIR THEM WITH THEIR CHILD'S DEVICE AND BELT VIA MOBILE AND BLUETOOTH. THE PREMIUM VERSION UNLOCKS A MORE ADVANCED AI MODEL AND ALSO ALLOWS FOR ANALYTICS AND FUTURE PREDICTIONS ABOUT THEIR CHILD'S CONDITION.



JAQYN.ORG

THE WEBSITE WAS CREATED AFTER COLLECTING FEEDBACK FROM A PILOT GROUP OF PARENTS, SO THAT USERS COULD FAMILIARIZE THEMSELVES WITH THE PRODUCT BEFORE PURCHASING AND MAKE A PURCHASE ON THE SAME SITE.





REFLECTION



THE SYSTEM COMBINES THE PRINCIPLES OF SENSORY REGULATION AND MODERN MONITORING TECHNOLOGIES. WITH PROPER CONFIGURATION AND GRADUAL ADAPTATION, THE DEVICE CAN SIGNIFICANTLY REDUCE ANXIETY IN CHILDREN WITH ASD. KEY TO SUCCESS ARE ETHICAL DATA HANDLING AND CLOSE COLLABORATION WITH INCLUSIVE EDUCATION PROFESSIONALS.

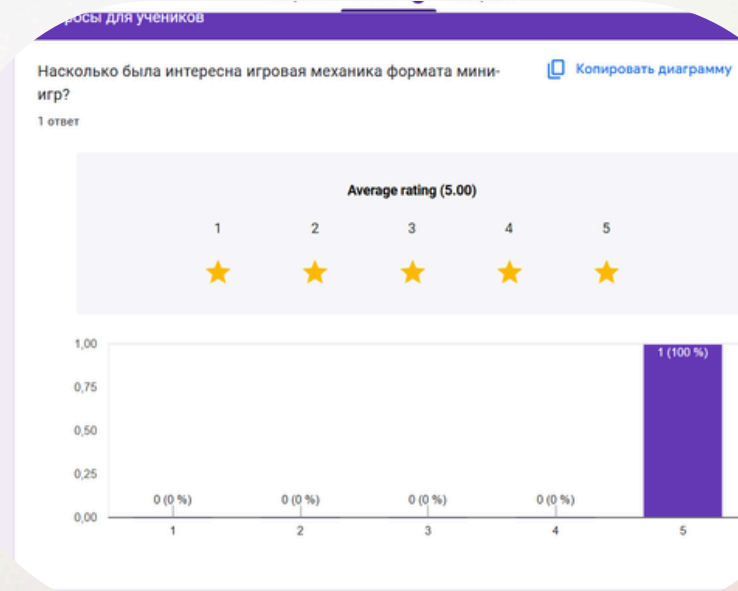
ULZHAN MURATKYZY - RESEARCHER AT SOCIAL PSYCHOLOGY LAB, UC BERKELEY

SOCIAL RESULTS:

REDUCED PARENTAL ANXIETY THROUGH CONSTANT MONITORING OF THE CHILD'S CONDITION AND INSTANT COMMUNICATION.

INCREASING THE INDEPENDENCE AND CONFIDENCE OF CHILDREN WITH ASD WHEN MOVING IN THE URBAN ENVIRONMENT.

CREATING AN INCLUSIVE URBAN INFRASTRUCTURE WHERE TECHNOLOGY ENSURES SAFETY, COMFORT, AND EQUAL OPPORTUNITIES.



TECHNOLOGICAL RESULTS:

ACCELEROMETER - DETECTS FALLS, SUDDEN MOVEMENTS, AND DEVIATIONS FROM THE ROUTE

PULSE AND BODY TEMPERATURE SENSOR - RECORDS INCREASED ANXIETY OR STRESS REACTIONS

GPS MODULE AND NAVIGATION SENSORS CONTROL MOVEMENT AND ORIENTATION IN SPACE

SKIN MOISTURE SENSOR - TRACKS PHYSIOLOGICAL SIGNS OF ANXIETY

WHY JAQYN AND NOT JUST A TRACKER OR BRACELET?



\$49

\$120 + SUBSCRIPTION \$40

\$230

- GPS/SOS/ACCELEROMETER, TEMPERATURE, HEART RATE, AND BODY HUMIDITY SENSOR
- A USER-FRIENDLY APP WITH AI INTEGRATION
- VIBRATION ASSISTANCE FOR ANXIETY REDUCTION AND NAVIGATION



JAQYN(KAZAKHSTAN)

GPS TRACKER -
NAVIGATION ONLY



ANGELSENSE(USA)



- TACTILE SIGNALS ARE ONLY FOR REASSURANCE



TOUCHPOINTS (USA)

JAQYN is the ONLY navigation system in the world that:

- Combines a complex of sensors and vibration motors into a single device.
- Scalable for all children with special needs: increased anxiety, ADHD, and cognitive impairments.
- Ready for big city traffic - no competitor designs a product specifically for the urban environment (schools, routes taking into account traffic and congestion, safe zones).
- Serves as a user-friendly ecosystem with the integration of predictive and analytical AI.

FINANCIAL MODEL

AUDIENCE: 240 MILLION CHILDREN WITH SPECIAL NEEDS WORLDWIDE



B2C

ONE TIME PURCHASE + PREMIUM SUBSCRIPTION

PARENTS OF CHILDREN WITH ASD, ANXIETY DISORDERS, ADHD, COGNITIVE AND NAVIGATIONAL DIFFICULTIES

B2B

PRIVATE SCHOOLS AND INCLUSIVE CLASSES

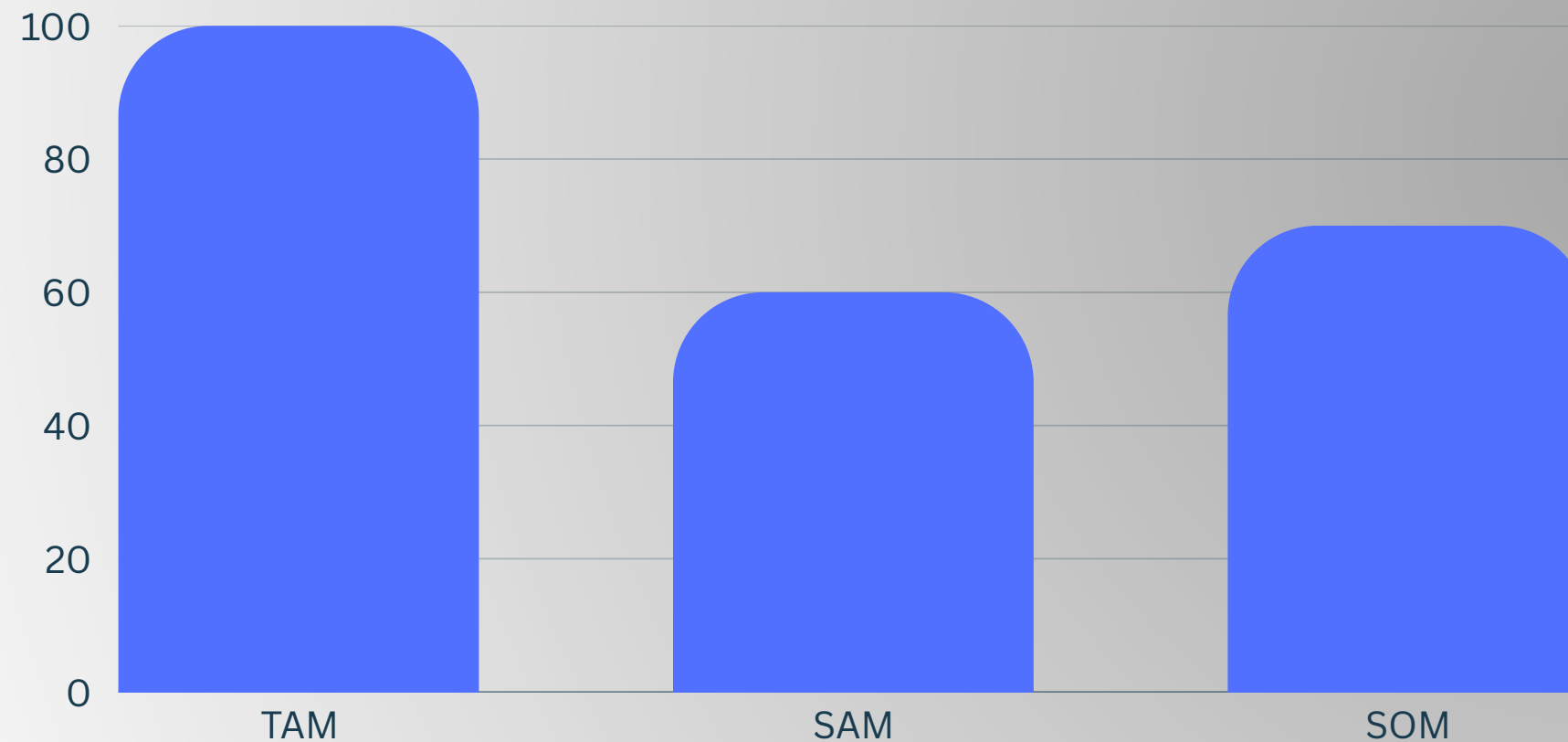
REHABILITATION CENTERS

ONE MUNICIPAL CONTRACT EQUALS 1,000–5,000 DEVICES.

B2G

STATE ORDERS FOR SCHOOLS AND HOSPITALS.

ORDERS OF THE MINISTRY OF EDUCATION, HEALTHCARE AND SOCIAL PROTECTION



- TAM: Millions of Dollars (Global Assistive Tech).
- SAM: 20-30 million families.
- SOM (3 years): 5,000 – 10,000 devices.

MARKET ENTRY AND PARTNERSHIPS

1. PILOT IN 5 SCHOOLS AND 3 NGOS (0–3 MONTHS).
2. PARTNERSHIP WITH THE DEPARTMENT OF EDUCATION OF ASTANA (4-8 MONTHS).
3. B2B SALES (SCHOOL PURCHASES) + B2C (PARENTS VIA SOCIAL NETWORKS) (9–18 MONTHS).
4. SCALING UP IN KAZAKHSTAN AND ENTERING THE REGION (18–36 MONTHS).

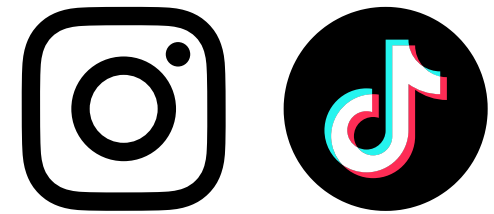
WHAT DO WE ASK FROM INVESTORS?

AMOUNT: 30,000,000 KZT (COVER 12–18 MONTHS: PRODUCTION OF A PILOT BATCH OF 500 UNITS, APPLICATION/AI DEVELOPMENT, PILOT MARKETING, OPERATING EXPENSES).

WHAT WE PROVIDE: SHARE / SAFE TERMS - NEGOTIABLE; MAIN COSTS: PRODUCTION, CERTIFICATION, PILOTS IN SCHOOLS, MARKETING, AND HIRING OF 3 KEY ROLES (TECHLEAD, PRODUCT, BD).

MARKETING STRATEGY AND SOCIAL MEDIA

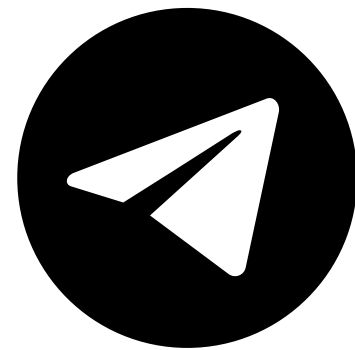
ATTRACTING AUDIENCE THROUGH VARIOUS PLATFORMS:



INSTAGRAM REELS AND TIKTOK — SHORT REAL-LIFE CASE STUDIES, BEFORE/AFTER VIDEOS, AND STORIES LIKE “DAY IN THE LIFE,” “DID YOU KNOW THAT?”



5-10 MINUTE INTERVIEWS WITH PSYCHOLOGISTS, PILOT RECORDINGS, INSTRUCTIONS



LOCAL GROUPS FOR PARENTS OF CHILDREN WITH ASD, QUICK NOTIFICATIONS ABOUT WEBINARS/PILOTS, JAQYN BOT



B2B/B2G HISTORY: REPORTS, APPEALS TO THE PUBLIC SECTOR AND INVESTORS.

CUSTOMIZATION

ON THE JAQYN.ORG WEBSITE, USERS CAN ORDER AND CUSTOMIZE THE PRODUCT BUYING JAQYN MERCH!



SUSTAINABILITY



JAQYN STANDS FOR SUSTAINABLE DEVELOPMENT AND IS DIRECTLY ALIGNED WITH UN SUSTAINABLE DEVELOPMENT GOALS SUCH AS

3 GOOD HEALTH AND WELL-BEING



- REDUCES ANXIETY AND SENSORY OVERLOAD THROUGH VIBRATION NAVIGATION;
- USES BIOSENSORS (PULSE, TEMPERATURE, MOVEMENT) FOR EARLY DETECTION OF STRESS AND EMERGENCY SITUATIONS;
- PROVIDES PARENTS WITH A SENSE OF CONTROL AND SECURITY THROUGH CONSTANT MONITORING.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



- WEARABLE DEVICE + MOBILE APPLICATION;
- AI AND PREDICTIVE BEHAVIOR ANALYTICS;
- INTEGRATION WITH URBAN INFRASTRUCTURE (MAPS, GPS, SOS)

10 REDUCED INEQUALITIES



- MAKES THE CITY MORE ACCESSIBLE FOR CHILDREN WITH SPECIAL NEEDS;
- ADAPTS TECHNOLOGIES TO INDIVIDUAL CHARACTERISTICS;
- SCALABLE FOR DIFFERENT GROUPS (ASD, ANXIETY, ADHD, COGNITIVE IMPAIRMENT).

11 SUSTAINABLE CITIES AND COMMUNITIES



- REDUCES THE NUMBER OF LOST CHILDREN;
- REDUCES THE BURDEN ON EMERGENCY AND SOCIAL SERVICES;
- CREATES A SMART, CARING URBAN ENVIRONMENT.

SERIK ILIYAS

TALGAT ERNAR

KHAMIDOLLA NURAKHMET

ASTANA, KAZAKHSTAN

JAQYN

THANK YOU FOR YOUR ATTENTION!



UAYNDAMA, MEN
ARQASHAN JAQYNMYN

LIST OF REFERENCES



- AMERICAN PSYCHIATRIC ASSOCIATION. (2022). DSM-5-TR: DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS (5TH ED., TEXT REV.). AMERICAN PSYCHIATRIC PUBLISHING.
- AUTISM SPEAKS. (2012). WANDERING AND AUTISM: UNDERSTANDING ELOPEMENT. [HTTPS://WWW.AUTISMSPEAKS.ORG](https://www.autismspeaks.org)
- BARANEK, G. T., DAVID, F. J., POE, M. D., STONE, W. L., & WATSON, L. R. (2006). SENSORY EXPERIENCES QUESTIONNAIRE: DISCRIMINATING SENSORY FEATURES IN YOUNG CHILDREN WITH AUTISM, DEVELOPMENTAL DELAYS, AND TYPICAL DEVELOPMENT. JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY, 47(6), 591–601. [HTTPS://DOI.ORG/10.1111/J.1469-7610.2005.01546.X](https://doi.org/10.1111/j.1469-7610.2005.01546.x)
- BEN-SASSON, A., HEN, L., FLUSS, R., CERMAK, S. A., ENGEL-YEGER, B., & GAL, E. (2009). A META-ANALYSIS OF SENSORY MODULATION SYMPTOMS IN INDIVIDUALS WITH AUTISM SPECTRUM DISORDERS. JOURNAL OF AUTISM AND DEVELOPMENTAL DISORDERS, 39(1), 1–11. [HTTPS://DOI.ORG/10.1007/S10803-008-0593-3](https://doi.org/10.1007/s10803-008-0593-3)
- FAZZI, E., MICHELETTI, S., GALLI, J., ET AL. (2019). SENSORY PROCESSING AND ANXIETY IN CHILDREN WITH AUTISM SPECTRUM DISORDER. FRONTIERS IN PSYCHIATRY, 10, 222. [HTTPS://DOI.ORG/10.3389/FPSYT.2019.00222](https://doi.org/10.3389/fpsy.2019.00222)
- GRANDIN, T. (1992). CALMING EFFECTS OF DEEP TOUCH PRESSURE IN PATIENTS WITH AUTISTIC DISORDER, COLLEGE STUDENTS, AND ANIMALS. JOURNAL OF CHILD AND ADOLESCENT PSYCHOPHARMACOLOGY, 2(1), 63–72. [HTTPS://DOI.ORG/10.1089/CAP.1992.2.63](https://doi.org/10.1089/cap.1992.2.63)
- KIENTZ, J. A., GOODWIN, M. S., HAYES, G. R., & ABOWD, G. D. (2013). INTERACTIVE TECHNOLOGIES FOR AUTISM. SYNTHESIS LECTURES ON ASSISTIVE, REHABILITATIVE, AND HEALTH-PRESERVING TECHNOLOGIES, 2(2), 1–177. [HTTPS://DOI.ORG/10.2200/S00533ED1V01Y201309ARH005](https://doi.org/10.2200/s00533ed1v01y201309arh005)
- PFEIFFER, B., KOENIG, K., KINNEALEY, M., SHEPPARD, M., & HENDERSON, L. (2011). EFFECTIVENESS OF SENSORY INTEGRATION INTERVENTIONS IN CHILDREN WITH AUTISM SPECTRUM DISORDERS. AMERICAN JOURNAL OF OCCUPATIONAL THERAPY, 65(1), 76–85. [HTTPS://DOI.ORG/10.5014/AJOT.2011.09205](https://doi.org/10.5014/ajot.2011.09205)
- RASHID, M., & BARLOW, J. (2020). WEARABLE TECHNOLOGIES FOR CHILDREN WITH AUTISM SPECTRUM DISORDER: A SYSTEMATIC REVIEW. SENSORS, 20(18), 1–25. [HTTPS://DOI.ORG/10.3390/S20185207](https://doi.org/10.3390/s20185207)
- SCHAAF, R. C., & LANE, A. E. (2015). TOWARD A BEST-PRACTICE PROTOCOL FOR ASSESSMENT OF SENSORY FEATURES IN ASD. JOURNAL OF AUTISM AND DEVELOPMENTAL DISORDERS, 45(5), 1380–1395. [HTTPS://DOI.ORG/10.1007/S10803-014-2299-Z](https://doi.org/10.1007/s10803-014-2299-z)
- STATISTA. (2025, NOVEMBER 29). RATE OF AUTISM SPECTRUM DISORDER AMONG U.S. CHILDREN FROM 2000 TO 2022. [HTTPS://WWW.STATISTA.COM/STATISTICS/676303/AUTISM-RATE-AMONG-CHILDREN-US/](https://www.statista.com/statistics/676303/autism-rate-among-children-us/)
- UNITED NATIONS. (2015). TRANSFORMING OUR WORLD: THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT. [HTTPS://SDGS.UN.ORG](https://sdgs.un.org)
- WORLD HEALTH ORGANIZATION. (2023). AUTISM SPECTRUM DISORDERS. [HTTPS://WWW.WHO.INT](https://www.who.int)