Routine

MAKE EXERCISES YOUR ROUTINE

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101004462

PARTNERS

PROGRAM PARTNERS

2022 – 2023 PARTNERS

CBI A³ 2022-23 & 2023-24 editions includes projects funded by ATTRACT Academy. ATTRACT has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101004462.

TEAM INFO

TEAM CHEERS

We are a group of students from Warsaw Design Factory at Warsaw University of Technology. We were participating in Challenge Based Innovation project (CBI A^3) powered by Design Factory Melbourne.

JULIA HERBICH

Spatial Planning

PIOTR KWIECIŃSKI

Architecture

KAROLINA ROMANOWSKA

Computer Science

Find out more about the project on our blog:
http://cbi.dfm.org.au/project/cheers/

Warsaw Design Factory

ABSTRACT

Three students from Warsaw University of Technology were participating in the CBI A³ project powered by Design Factory Melbourne. The main goal was to combine the UN Sustainable Development Goal 3 "Good Health and Well-Being" with deep technologies developed at CERN and during the ATTRACT project to create solutions for the year 2030.

A sedentary lifestyle has a detrimental effect on our health. Back problems and postural defects arise through an unsuitable workstation. As a result of prolonged sitting, blood in the veins slows down, resulting in varicose veins. Swollen wrists are caused by repetitive movements while using a computer. Monitors emit blue light, to which our eyes are exposed and begin to hurt after many hours. Finally, a sedentary lifestyle results in low activity, which can lead to obesity [1].

Already 70% of active people in Poland work mainly in a sitting position [2]. Combined with our 2030 scenario, which also involves spending more and more time at home, we think the problem of sedentary lifestyle will constantly grow. We asked ourselves: "How can we solve this problem? How might we increase people's motivation to exercise regularly in a way that is fun and engaging? How can we support them?"

We found the solution, Youtine, a personal motivator and training kit which reminds users about breaks for exercises during long periods of sitting and which can work out with them.

To make it work we need ATTRACT technologies.

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PROBLEM SPACE

Sedentary lifestyle

A sedentary lifestyle affects the health of the society. Due to a constant development of technology, the employee's primary duty is to supervise the machine more often. According to the WHO, we should be active daily to maintain well-being and health. Unfortunately, Poles are one of the least active societies in Europe. We ranked sixth from the bottom among the EU Member States. Currently, about 70% of the professionally active people in Poland work mainly in a seated position.

The WHO calculated that an hour of sitting shortens our lifespan by 21 minutes. This lifestyle affects our health badly, comparably as smoking a pack of cigarettes every day does. Lack of exercise is the fourth leading cause of mortality in the world.

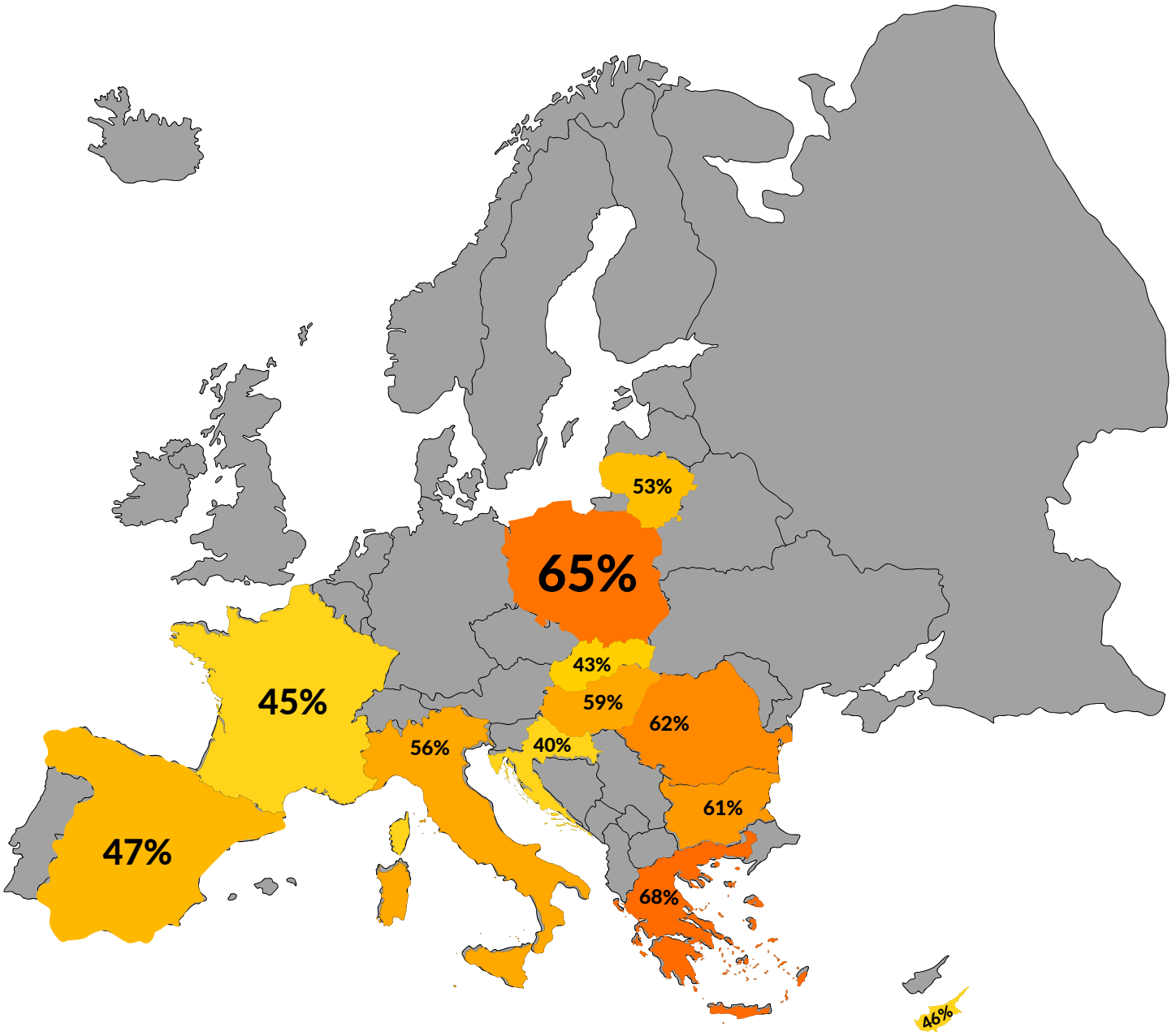
Research in Loughborough has shown that time spent sitting is associated with a risk of developing diabetes, cardiovascular disease and death. Also, the load on the spine while sitting is 40-90% greater than when standing.

Almost everybody experiences the negative effects of a sedentary lifestyle but people who are most affected by them are office workers, students and in designers.

"If everyone in the EU were to meet WHO recommended levels of physical activity, it could prevent more than 10 000 premature deaths each year."

Step Up! Tackling the Burden of Insufficient Physical Activity in Europe, OECD and World Health Organization

The map shows the percentage of people who never exercise*



Percentage of people who never exercise or play sport > 40%

*exercise in the sense of any physical activity which a person do in a sport context or sport related field, such as swimming, training in a fitness centre or a sport club, running in the park

Why is sedentary work hazardous for health?

Muscle stiffness

Back pain

Obesity

Cardiovascular diseases

Cancer

Type 2 diabetes

Premature death

FUTURE CONTEXT

Future Scenario 2030

Our vision of the world in 2030 says that life will move to the virtual world – metaverse. There will be international and local institutions (for example separate spaces for countries and cities). Data security will be extremely important then. Well-developed artificial intelligence will be a base for many sectors.

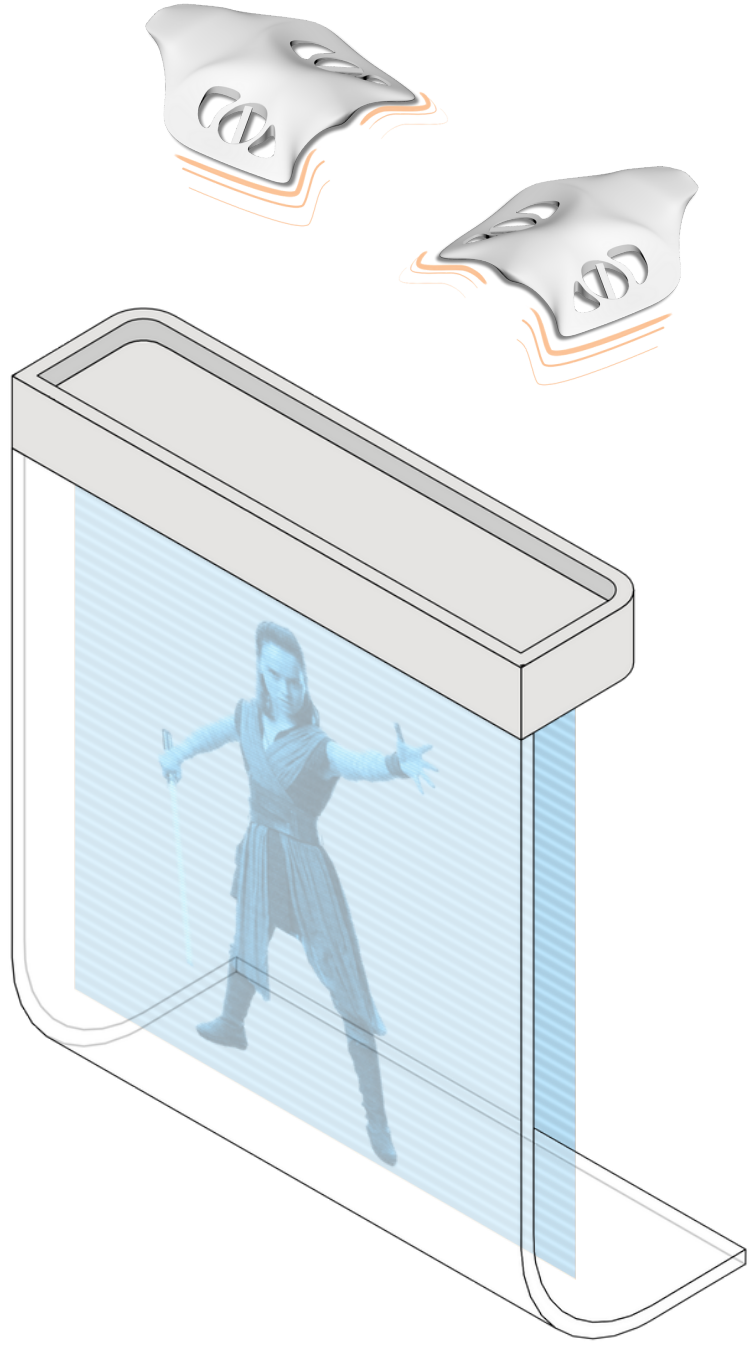
Because of that, people will spend most of the time at homes, switching to virtual world even while working. Everybody will have the same right to access the metaverse. This will end up in deep social isolation – interpersonal relationships will be limited. According to actual mega trends there will be a demographic decline and society will be getting older and older. That's why constant health check will be needed and AI with other future technologies will allow it.

Life will move mostly to the virtual world but it doesn't mean people will not leave their houses. However, cities and public spaces should be adjusted to their needs. The idea of the future cities will be based on sustainable development, good accessibility, self-sufficiency and care for the natural environment. Renewable energy sources will be the only possible ways providing energy. Communication, logistics and delivery systems will be well-developed. Life will be going on diffrent levels – underground, on the surface and in the sky but also in real and virtual world at the same time.

SOLUTION SPACE

Youtine

MAKE EXERCISES YOUR ROUTINE



DRONES

Scan your body
to tailor the exercises to you

Enable exercises
adapted to the available space

HOLOGRAPH FRAME

Displays trainee coach to
follow up for the workout

Showing your motivating
coach, whether Jedi Knight,
Bruce Lee or your beloved, to
remind you about moving

Youtine - your personal motivator and training kit which reminds you about breaks for exercises during long periods of sitting and which can work out with you!

TECHNOLOGIES

HYGER

for
body detection [4]

SPACC

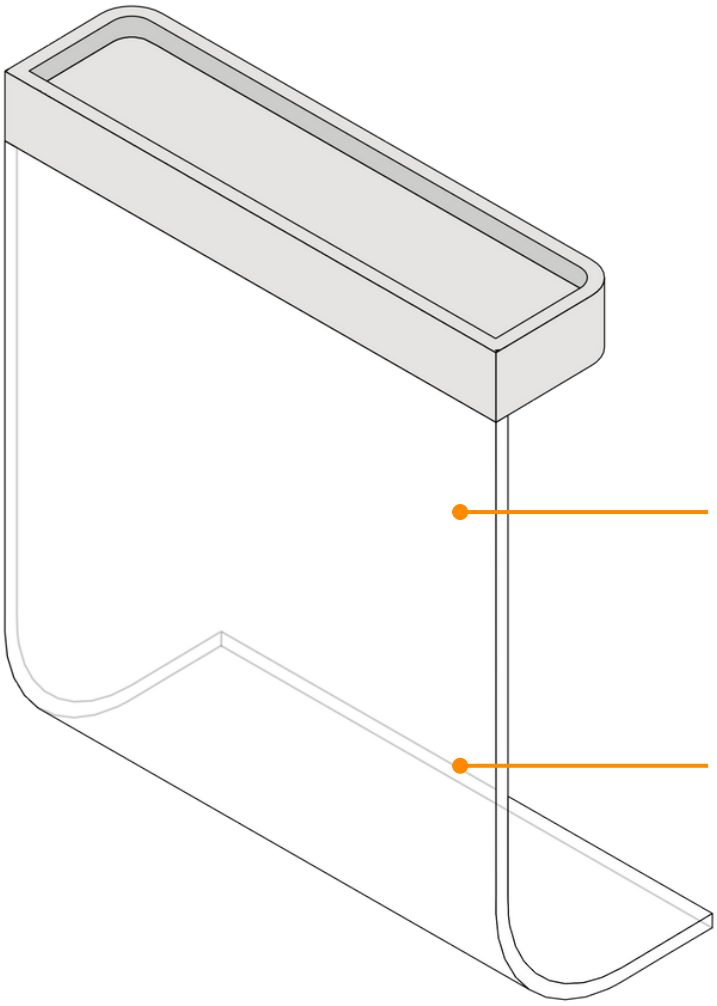
for
camera operation [6]

Meso-Cortex

for
habits creation analysis [5]

TIMES

for
metabolism control [7]



GIMOD

for
display [8]

Deepfake

for
motivator creation

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HYGER

It is a detector converting infrared light waves into electrical signals.

MESO-CORTEX

It is a cortical imaging device with a curved-sensor-based wide-field module that compensates the curvature of the observed brain.

SPACC

It is a low power demand camera that is easy to place in hard-to-reach places. It is powered by solar cells and does not require batteries.

TIMES

It is an infrared radiation detector ensuring real time and non-invasive chemical identification.

GIMOD

It is a reflective-type display that doesn't use energy to generate light while having great contrast in bright environments, reducing the average power consumption of device. Its pixels are mechanical micro-mirrors that tune the white light to show natural colours.

ATTRACT

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101004462

VALUE PROPOSITION TO USERS & SOCIETY

Existing solutions do not work. Reminders in applications irritate users and are quickly turned off, gyms with free access are empty, most of the physical education is done on the bench and the motivation after buying a gym card passes quickly. People have problems with motivation, community support, time and confidence.

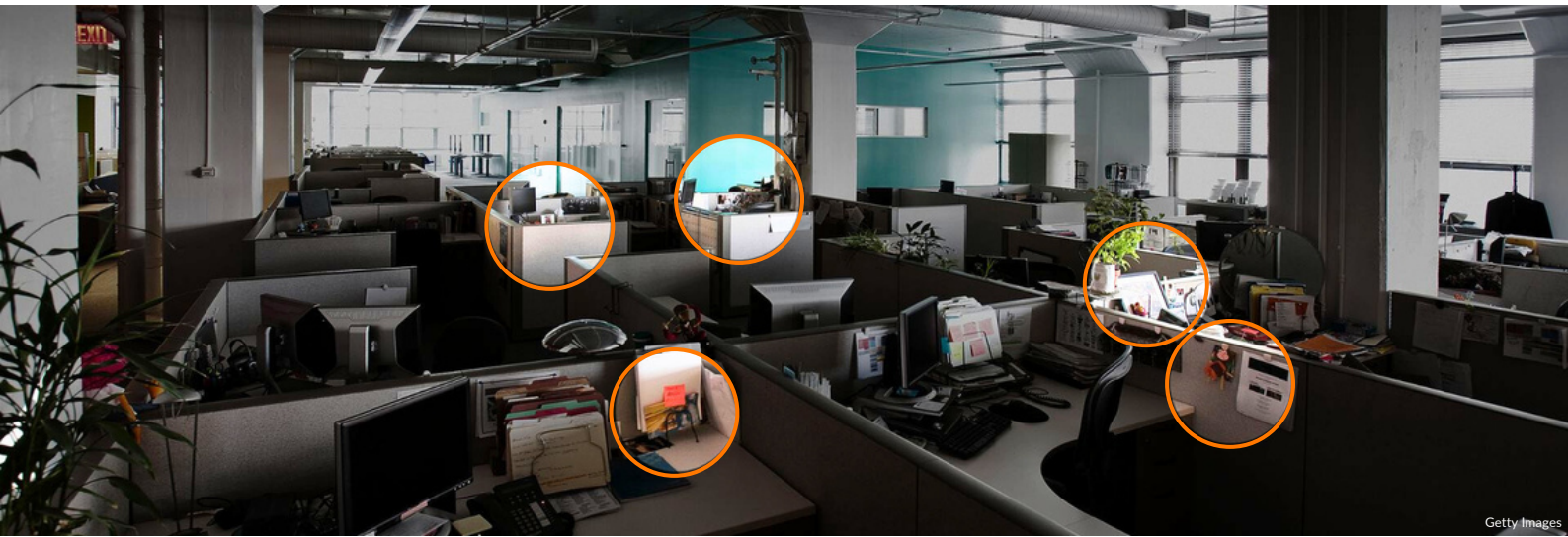
Mobile apps

Outdoor gyms

Physical education

Gym memberships

There is a field with lots of potential how to solve this problem. From the observations and discussions it bacame clear that almost everyone has something in common: photos of their loved ones on the desks. Research at the University of Michigan found out that a frame reminds employees about their core values and motivates them to stick to them [3].



"Smart living is not only about improvements, but also about creativity, i.e. breaking out of existing canons."

Prof. Piotr Płoszajski | head of the Institute of Management, SGH Warsaw School of Economics

Youtine is a device and training kit which was designed to motivate people to move more and support them while exercising. It can be fully personalised to the user's needs.

MOTIVATION

Guideline

Exercise personalization

Personal motivator

Progress monitoring

SUPPORT

Schedule adjustment

Reminder type adjustment

Modular

Youtine can be used ...

IN THE OFFICE

Emma is stretching her legs in the office

AT HOME

Emily and Alfred are doing exercises at home

IN A GROUP

INDEPENDENTLY

Tom is keeping his back straight

DESIGN ROADMAP

PAST | 2020 | 2023 | 2030 | 2050

GLOBAL PANDEMIC

PURPOSE

Sedentary Lifestyle at work — Scientific research report:" *Picture frames may cause ethical behaviours among office workers"* Dave Mayer, University of Michigan — Work and school go remote — Alternative inserting data and computer operations through body gestures

REMOTE WORKING AND LEARNING INCREASING

FUTURE SYSTEM OF WORKING

PROBLEM WITH OBESITY AND POSTURE DISORDERS

BUILDING HEALTHY HABITS

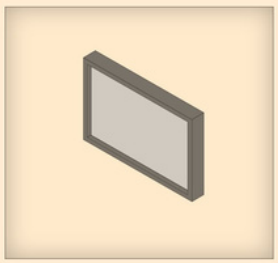
Physical acitivity — Lack of sufficient exercise among children and adults — Huge awareness and need for work-life balance — Mobility and possibility to work while working out

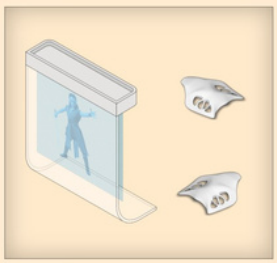
Social life — Lack of f2f interactions — Generations gap — Deep human isolation and mental health problems

WHAT

PICTURE FRAME (photograph of loved ones) — Digital frame for playing exercise videos — YOUTINE frame with drones that enable real time monitoring body parameters while exercising — YOUTINE 2.0 holographic drones to work out in real time with friends

SNAPSHOTS





RESOURCES

METAVERSE

OFFICE MASS DIGITALIZATION

Computerization — Network — Laptops — Smartphones — Cloud servers — Metaverse released globally

Mobility technology — Microsoft releases XBOX Kinect sensor — Drones — AR & VR technology — Drones miniaturized — Holograph

CONCLUSION

A sedentary lifestyle has a huge impact on our lives, especially health condition. There are many problems caused by wrong daily habits, low activity and also inappropriate way of working.

Combining SDG 3 with deep technologies made it possible to create a solution to that for the year 2030.

Youtine is a personal motivator and training kit which reminds users about breaks for exercises during long periods of sitting and which can work out with them. Its features are focused on two main areas: motivation and support. Youtine enables to choose a personal motivator, constantly monitores the progress, adjusts to user's day schedule, provides guidelines during workout, adjusts exercise type, personalizes user's account and also has a modular design which makes it easier to change parts when needed.

Everybody can and should exercise regardless of available space, level of disability or age.

Create a nudge. Stand up and be the move you want to see.

APPENDIX

[1] "Professional work as a risk factor for chronic venous insufficiency" 2016 CIOP BIP dr Elżbieta Łastowiecka-Moras

[2] "The Work Colleague of the Future. A report on the long-term health of office workers" 2019 Fellowes

[3] "Show me the … family: How photos of meaningful relationships reduce unethical behavior at work" Organizational Behavior and Human Decision Processes, Volume 161, November 2020, Pages 93-108

[4] https://attract-eu.com/projects/hyger/

[5] https://phase1.attract-eu.com/showroom/project/wide-field-cortical-imaging-at-mesoscopic-scale-meso-cortex/

[6] https://phase1.attract-eu.com/showroom/project/spacc-self-powered-autonomous-cmos-camera/

[7] https://phase1.attract-eu.com/showroom/project/transformational-infrared-detectors-for-medical-and-environmental-sensing-times/

[8] https://phase1.attract-eu.com/showroom/project/graphene-interferometric-modulator-displays-gimod-project/