Siauliai Stasys Salkauskis Gymnasium

KA2 action
"Maths, technology, engineering inside the class"

2018 - 2019 school year
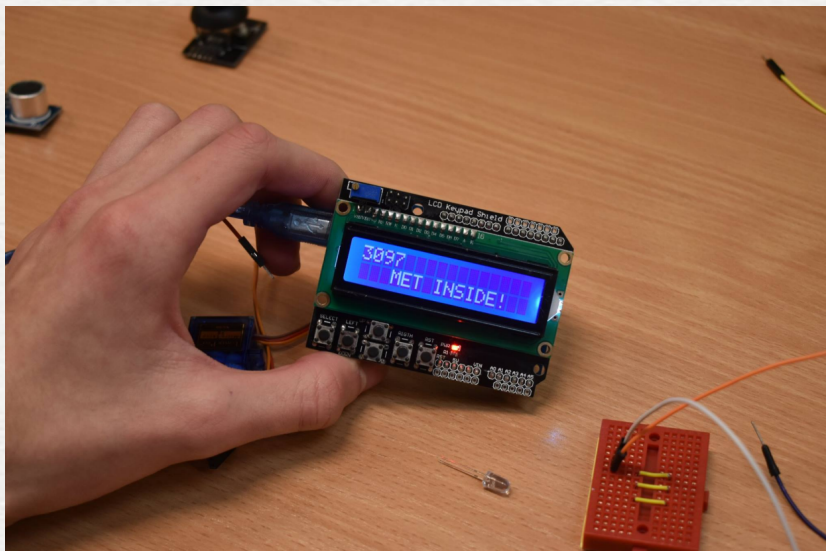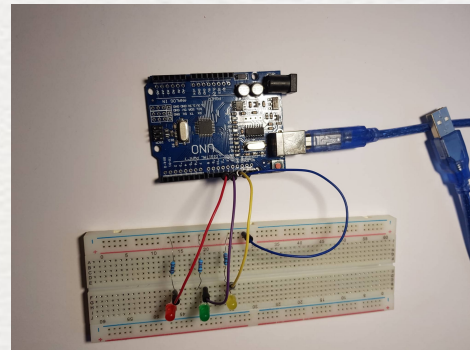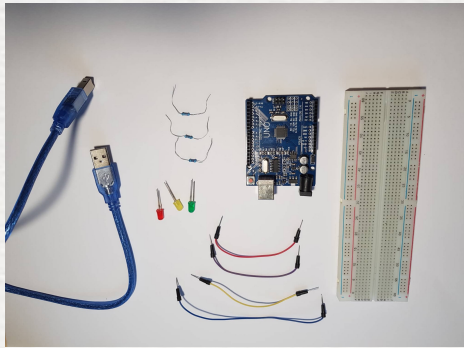
Workshops

**Every Tuesday
from 14.30**

E-STEM Club members:
Aiste
Aivaras
Dominykas
Eimantas
Edvinas
Eva
Gintas
Gytis
Jomante
Justinas
Kamile
Mantas
Martynas
Mikas
Modestas
Paulius
Tautvydas
Vakaris
Vilius

ARDUINO

"To begin with, one of my tasks was to make something impressive like lightning an array of LEDs which could be a bit difficult at times. I have made a "Smart Home System". At first it looked easy, we just looked up what we need (Parts) and once we got them we realised that it was not that easy... The parts that we got were really high-end like wi-fi chips that were so good that we haven't figured out how they work till this day. The biggest problem was that we were too green and inexperienced at first.

The biggest challenge was to understand how to connect code with the information we were receiving from the sensors. I was satisfied with what we have done but I think we still need to polish the project a bit. For the next time I think we should try to design the case for the project by ourselves using AutoCad and 3D printer."

Eimantas Toleikis

"Our task was to create a lightning array of LEDS, controlled by buttons. This task wasn't very difficult. At the same time we were doing a "Smart Home System" project.

The most chalenging part of the "Smart Home System" was researching all the sensors we had and writing all the codes. The first problem of researching of how the sensors work was that we had to go trough a lot of documentation and "github" examples.

However, the code writing part was easier, we wrote it in one day but refined it in five days. We were really satisfied with our project, we now could measure room's temperature, humidity and CO_2 concentration. This project helped me to understand a new programming language and learn new skills like soldering."
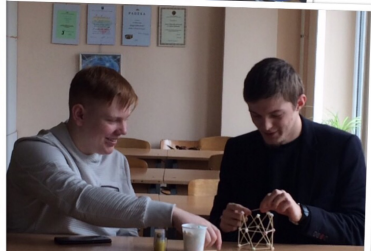
Vakaris Toleikis

MINDSTORM EV3 ROBOTS
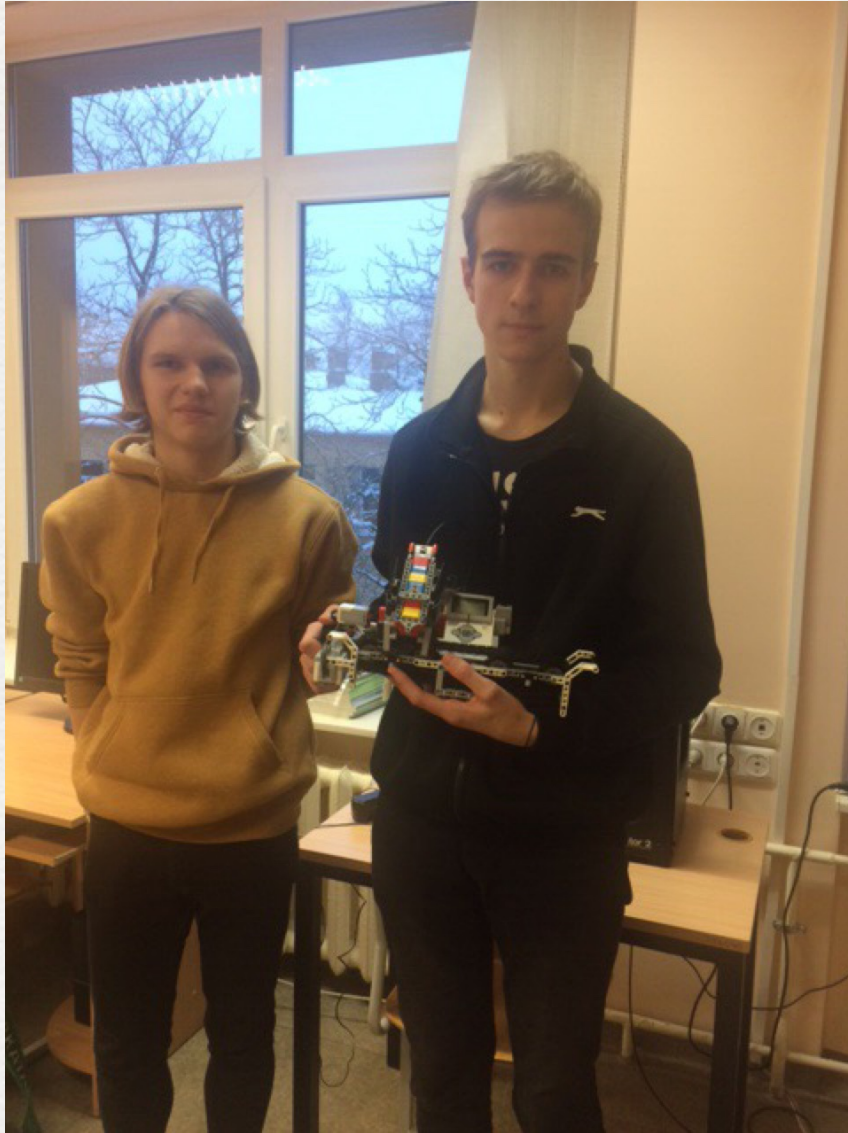
"I was assigned to find the information about EV3 gyro sensor; colour sensor, ultrasonic sensor. It wasn't difficult because there was a lot of information in manual book and internet. I think the hardest challenge was to programme these sensors. For example, the gyro sensor detects rotational motion in the plane indicated by the arrows on the top of the sensor housing. The sensor measures the rate of rotation in degrees per second and keeps track of the total angle of rotation in degrees. The colour sensor has three different modes: colour, reflected light intensity, and ambient light intensity. The ultrasonic sensor measures distance to an object up to a maximum of 255cm away. It does this by sending out high frequency sound waves that bounce off any object in range, and measuring how long it takes the sound to return to the sensor. In the software, you can select whether the distance is given in centimetres or inches. I am satisfied with results because it was pretty easy to find information about it."

Paulius Ruibys

The tallest building and eartquake imitation with EV3

"The tallest building and earthquake imitation with EV3 was our primary task in the project which was very interesting and fun because we worked in groups. We thought how to build the tallest and most interesting tower from sticks and marshmallows. There was a problem that the higher you build the more it flips to the side, so we decided to make the tower base as strong as possible so that the entire tower would be stable. I am pleased about my work, becouse in this group we had a really great time, all work was done on time and we made everything we could."

Eva Simutyte

"My challenge in this project was the construction of a large tower that can withstand an earthquake using EV3. The hardest part was reinforcing the towers and finding the proper materials to do so. After the first atempt I have constructed a very tall tower, however, it collapsed very quickly. My second atempt was better. The tower was not as tall as the first one but it was able to withstand the earthquake because I used stronger materials and better tools for its construction."

Kamile Railaite

Pianist Robot

Projectile launcher

"We were instructed to make a robot pianist, which should be able to play the piano. At first the task looked really difficult, because we were supposed to build the robot, program it, and obviously get something like a piano for our robot to play. But we made our own version of the robot. We made the robot more like a drummer than a pianist. It was just beating a hard surface with programmed rythm that is synced with a melody that was uploaded to the robot. It turned out just as we expected, and we were satisfied with our upgraded version of the robot. If we got this task again, I would instantly think outside the box, so that our team's ideas come out freely."
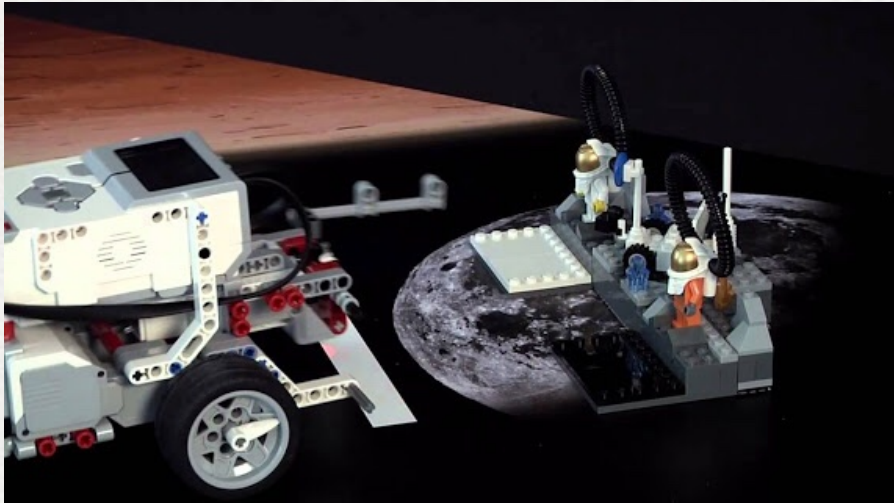
Justinas Adomaitis
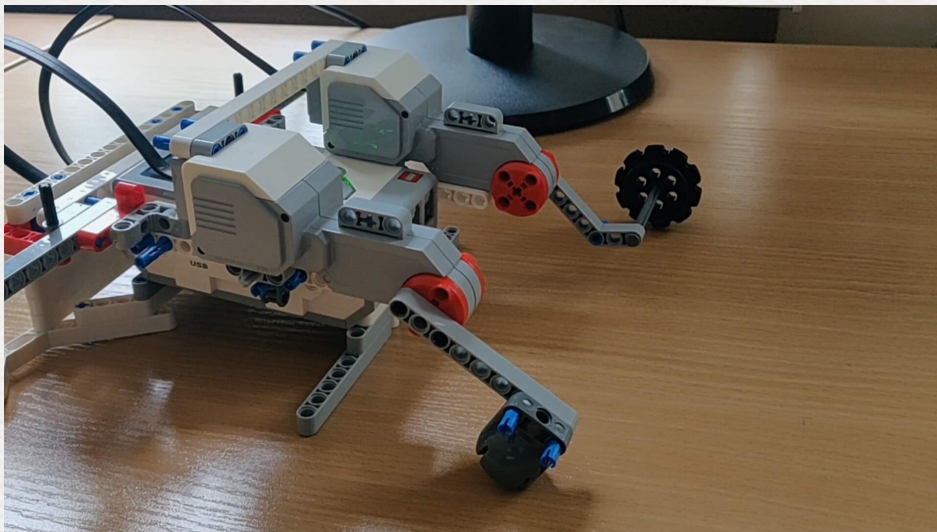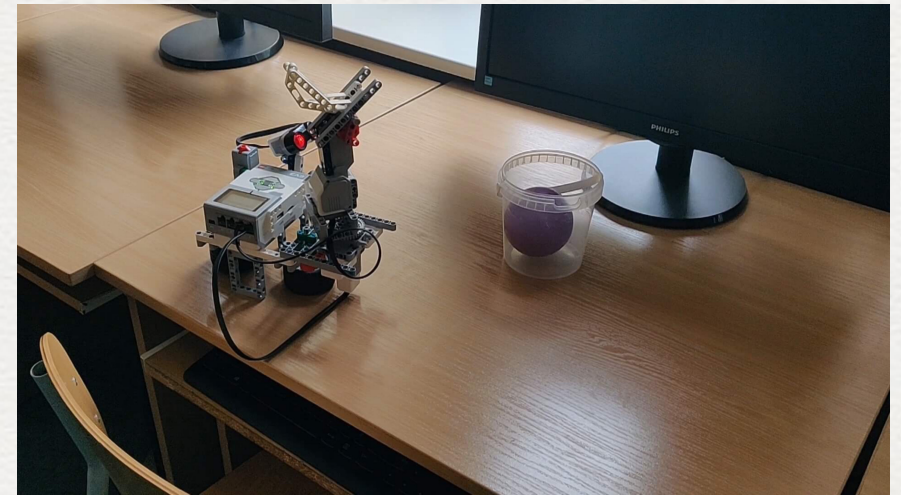
"The main task I was involved in was to make an EV3 projectile launcher. We used 1 ultrasonic sensor, 1 touch sensor and 1 large motor. The task was not very difficult and we had a lot of fun doing it because we finished it relatively quickly and if we encountered any problems someone would immediately come up with a solution. We were quite satisfied with our final result because it was fun and it was a great chance to get to know each other. I'm not sure if I would change or do anything differently because we got a great result."
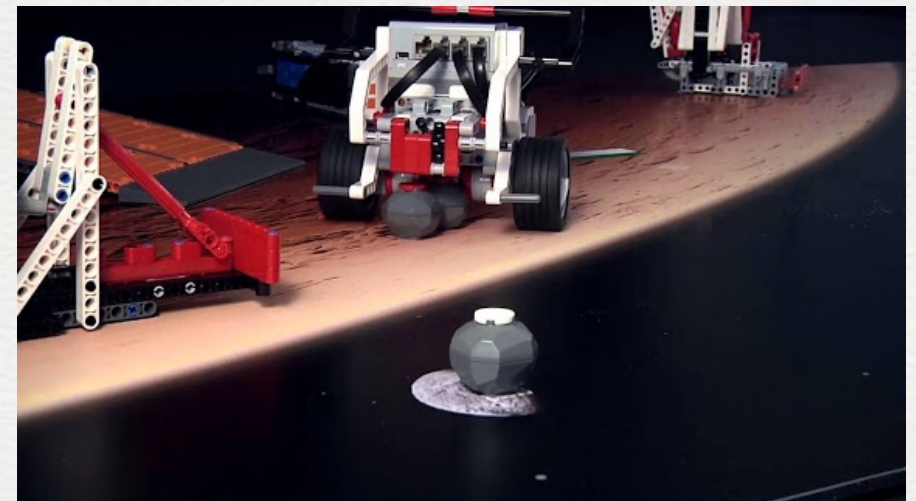
Gintas Kazanavičius

Space missions

"One of the tasks we were given was to complete space challenge. This task was quite fun, but in the same time it was difficult. We worked as a team and we finished the biggest part of the challenge. In some missions we didn't execute the lego robots programming, we tried our best, but we haven't finished it fully. In this challenge we learned to communicate, how important it is to work as a team and the commitment for the project activities. Next time we should do everything more consistently, because some missions caused some problems in programming, but I'm happy with our achievements. This challenge tought us a lesson that every detail matters, so everything should be done by taking your time and carefully."

Aivaras Jocas

"My project task has been LEGO MINDSTORM EV3 space challenges. It was interesting, fun and kind of difficult. The programing part was the most challenging for me because creating the new program wasn't always successful. Starting all over again and trying to find the mistake at times was quite hard. The 2nd mission was causing the most problems as we couldn't get the Lego man to stay hanging, but after some time we solved it. We built some kind of hook that worked. We were satisfied just because it took a lot of time to do everything. Next time we should do everything more carefully because we did some small mistakes in our program and other tasks."

Mikas Montvilas

"We were assigned the task to build EV3 robots that could perform by completing Space Challenges. Some of the challenges were easy to complete but of course it we struggled with with a few. We had problems with space challenge number 07 because of the lack of mindstorm EV3 power. It wasn't hitting the right place strongly enough to fire rocket to the moon. This problem was solved by attaching heavy tires to the front of robot so it could hit the button powerfully. We were feeling satisfied about our results because every challenge was completed. Next time when we have to do something similar I'll help my team more and I'll try to solve problems in a smarter way."

Edvinas Ezerskis
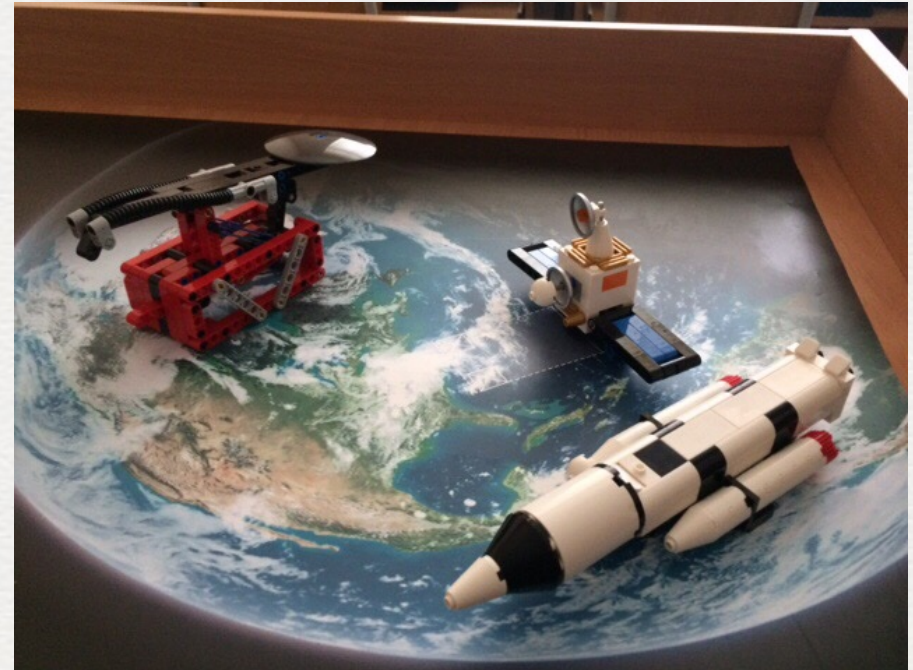
"Working with LEGO MINDSTORMS EV3 space challenges was really interesting but also quite difficult because we had some problems with 7th mission. For example, big program or weak motor. But we have solved it! We solved weak a motor problem because our team constructed 2 heavy wheels in front of the robot and we made program correctly. After the missions we were satisfied with our work because it took a lot of time. Next time in similar situations we should be more serious and we should focus only on our task."

Gytis Uzkuraitis
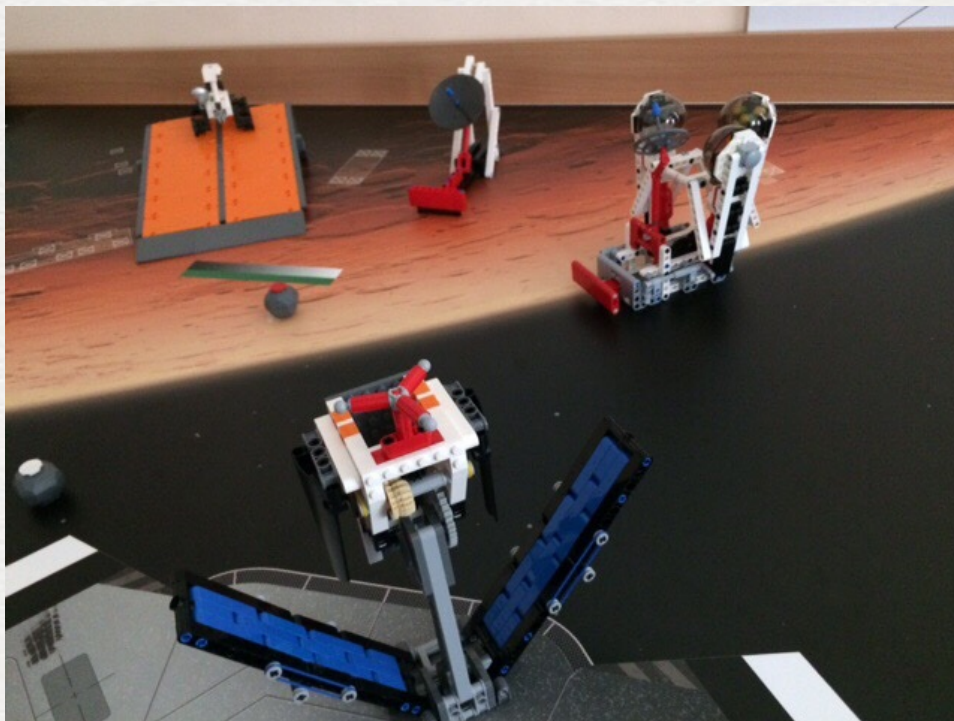
Science pack
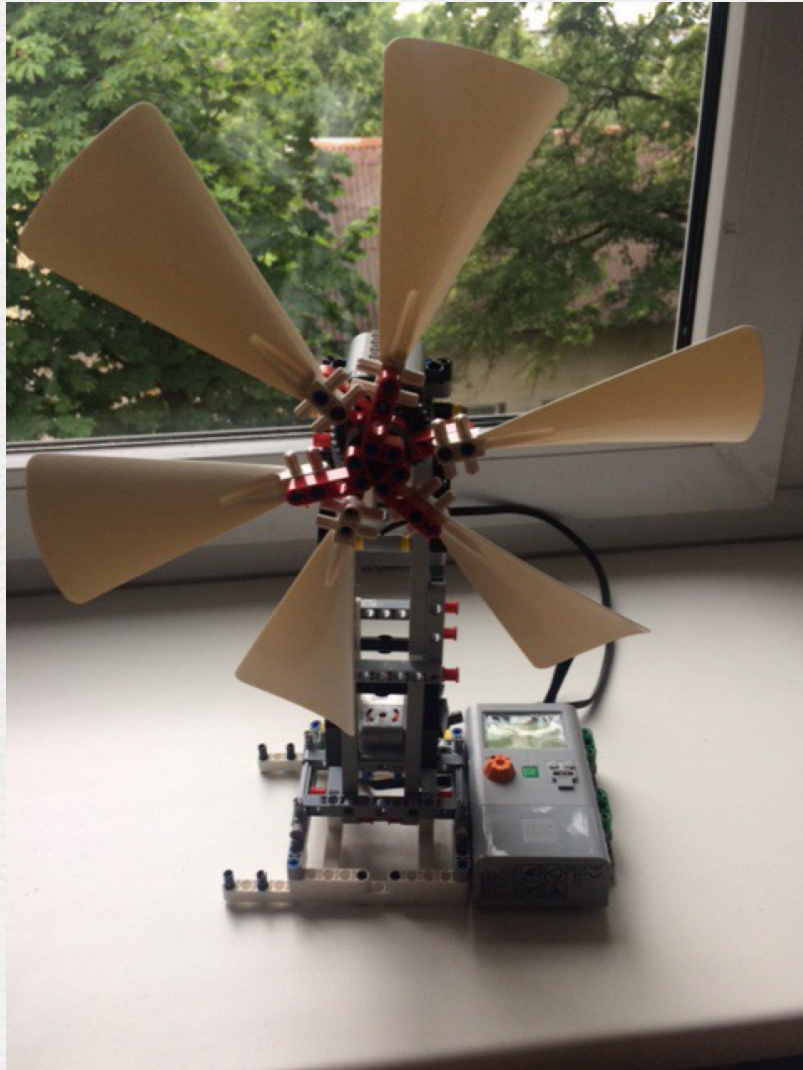
RENEWABLE ENERGY

"The task was to build renewable energy sources from LEGO MINDSTOMS education EV3 Renewable Energy Add-on Set. The construction was rather simple as the instructions were very clear and easy to understand. The biggest problem was charging the battery on the wind energy set since it had to be done by hand. Later I built a gearbox on one of the wind energy sets to make this task easier and speed up the process. I had fun building these sets and they turned out as I expected so I'm satisfied with this challenge. I don't think that I would do anything differently except maybe make an even better way to spin the motor on the wind energy kit."

Modestas Stravinskas

Staff exchange project meeting in Cartaxo
November5, 2018 -   November 9, 2018

Students' short exchange project meeting in AFYON
April 1, 2019 - April 5, 2019

"During the project visit I experienced a lot. It has changed my life a bit. Being abroad, studying something different or in a different way is something I will never ever forget. The people I met and the places I have seen that week are spectacular. Friendship is something amazing, because I learnt about language, culture and religion. It is also a wonderful thing to know I have friends beyond the borders of my country. After arriving home from journey, I understand that I have much more experience than I had had before I left. During the project at Afoyn, I learnt how to do Space Challenge, also we were practicing with Lego robots and with Arduino."

Aiste Grisiute

"In this spring we went to Turkey. It was a really long trip, but it was totally worth it. So, our project started in Afyon which is really big compared to our cities. First day in Afyon we went on sightseeing trip and it was really cool. On the same day I tasted some delicious Turkish food. On the upcoming days we did really interesting activities in the morning. Where needed to make a lot of different programs for robots. For example, we had to write a short guide about our country and then record it. After that we needed to upload it to the robot we had and make it talk. It was really fun working in Afyon, because I learned a lot of new stuff and got a lot of experience in programming."

Mantas Sornelis

Students' short exchange project meeting in Zychlin
May 20, 2019 - May 24, 2019

"We met in Zychlin on Wednesday. The first task was to present our homework - 4 videos. The first one was "The House of Mother Nature", the second was "Save the Marine Life", the third one was "EV3 Pianist" and the last one was "EV3 Launcher". The presentation was really easy to perform because all we had to do was just to turn on videos on youtube. Everything went really smoothly and there were no problems or challganges for us. We were really satisfied with our result because everything went quite well and our videos were really great quality. The next time I would not do anything diffrently, bucuse we worked really hard at home, and we were ready for everything that we had to do. We were really confident in ourselves when we showed our work."

Tautvydas Lukosevicius

The House of Mother Nature

"This task was a little bit difficult to fulfil because it took a lot of time to make our house and we wanted to make it perfect. Also, it was difficult because we do not have all equipment, but our technology teacher helped us out. So, our biggest challenge was to find all equipment we needed. With the final result I was really satisfied because our house was really nice and small and we enjoyed making it. Next time I would do the same house because I really enjoyed the result."

Jomante Vilciauskaite

Save the Marine Life

"The task was to make a machine that would pick up the trash from the ocean without killing the marine life. The task wasn't very hard to do becouse we found a lot of information and had IT afterclass everyday and our teacher was a great help. When all of the information was gathered up we processed the best information and with it we made the model. However, making the model wasn't that easy, becouse of our poor time managment. We each had different things to do and it was really difficult for all of us to gather up at the same time. We mostly met after school for an hour or two so we could make the project. I was satisfied with the work I did, becouse I gave all of my best to create it. I think that next time I would try to manage my wrok more efficiently."

Vilius Malmiga

Other activities

DISSEMINATION

National Forum "STEAM is our PIN code"
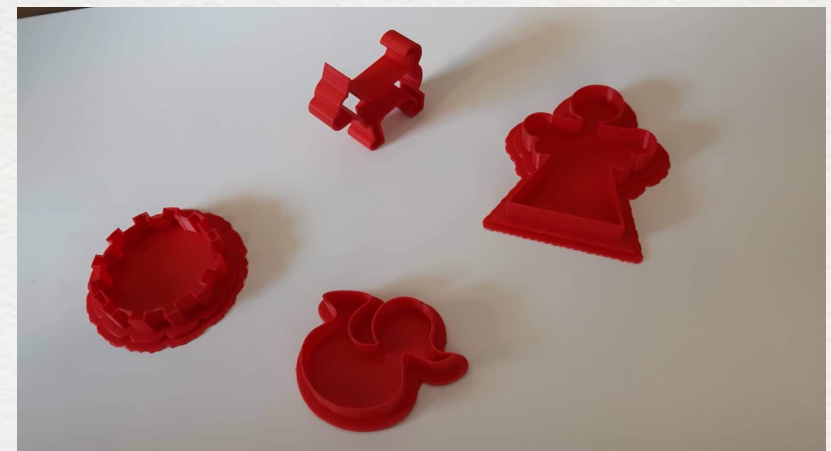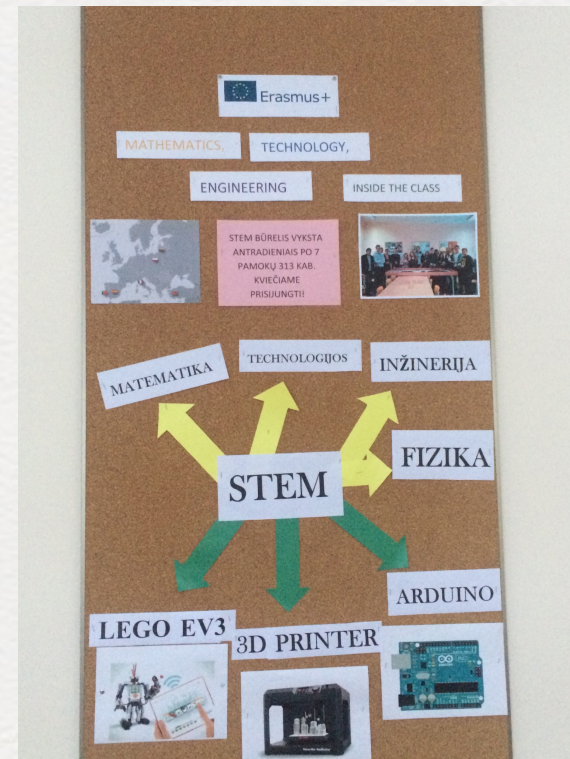
Šiaulių miesto savivaldybės švietimo centras
Šiaulių Stasio Šalkauskio gimnazija
www.svcentras.lt
www.salkauskis.lt

KVIETIMAS

FORUMAS

STEAM – MŪSŲ PIN KODAS

2019 m. gegužės 14 d.

Summer day camp for children "STEAM"

Left poster

Vaikų vasaros dienos stovykla „STEAM"

Sportuok, **T**yrinėk, **E**ksperimentuok, **A**tostogauk, **M**ėgaukis!

Amžius: 9 – 14 m.

Vieta: Stasio Šalkauskio gimnazija (S. Šalkauskio g. 3, Šiauliai)

Data: nuo 2019-06-25 iki 2019-06-28

**Veiklų laikas:** 9.00 val. - 16.30 val. (atvykimas nuo 8.00 val.; išvykimas iki 17.30 val.)

Kaina: 15€* (įskaičiuota: veiklos, edukacinė programa, išvyka, pietūs ir užkandžiai dienos metu)

Stovykloje laukia:

konstravimas, eksperimentavimas, modeliavimas, tyrinėjimas, 3D gaminio spausdinimas, programavimas, lobio paieška, komandiniai bei socialiniai žaidimai, linksmosios estafetės ir judrieji žaidimai, išvyka, pynių pynimas, gertuvės dekoravimas, molio dirbtuvėlės, foto koliažų kūrimas, edukacija „Mokslininko gimtadienis"...

Informacija ir registracija iki 2019-06-10: tel. 8 612 68496; el. p. stovykla.steam@gmail.com

Stovykla yra dalinai finansuojama Šiaulių miesto savivaldybės administracijos ir Mokymosi visą gyvenimą programos, kurią Lietuvos Respublikoje administruoja Švietimo mainų paramos fondas.
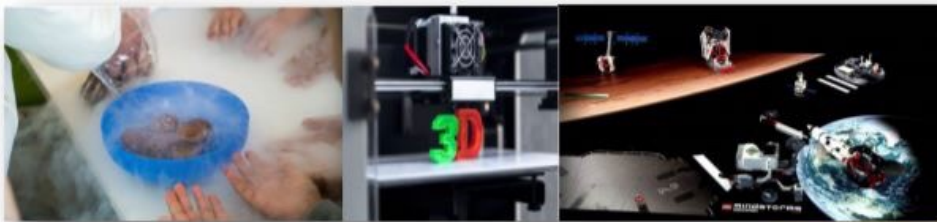
Co-funded by the
Erasmus+ Programme
of the European Union

Right poster

Vaikų vasaros dienos stovykla „STEAM"

Sportuok, **T**yrinėk, **E**ksperimentuok, **A**tostogauk, **M**ėgaukis!

Vieta: Šiaulių Stasio Šalkauskio gimnazija, S. Šalkauskio g. 3

Antradienis **06-25**	8.00 – 9.00	Atvykimas, sutarčių pasirašymas
	9.00 – 10.30	Susipažinimas
	10.30 – 11.00	Užkandžiai
	11.00 – 12.30	Indelio dekoravimas
		Bokštų statymas – pasiruošimas eksperimentui
	12.30 – 13.00	Pietūs
	13.00 – 14.30	Linksmosios estafetės
	14.30 – 15.00	Gaminame patys!
	15.00 – 16.30	Konstravimas, programavimas, eksperimento vykdymas
	16.30 – 17.30	Išvykimas (pynės pynimas)
Trečiadienis **06-26**	8.00 – 9.00	Atvykimas (stalo žaidimai arba pynės pynimas)
	9.00 – 10.30	Konstravimas
	10.30 – 11.00	Užkandžiai
	11.00 – 12.30	Keramikos užsiėmimas
	12.30 – 13.00	Pietūs
	13.00 – 14.30	Lobio ieškojimas
	14.30 – 15.00	Gaminame patys!
	15.00 – 16.30	Modeliavimas (3D)
	16.30 – 17.30	Išvykimas (judrieji žaidimai arba pynės pynimas)
Ketvirtadienis **06-27**	8.00 – 9.00	Atvykimas (stalo žaidimai arba pynės pynimas)
	9.00 – 11.00	Konstravimas, eksperimentavimas
	11.00 – 11.30	Pietūs
	11.30-15.30	Išvyka į Kurtuvėnus, edukacija
	15.30 - 16.30	„Piešiame įspūdžius"
	16.30 – 17.30	Išvykimas (judrieji žaidimai arba pynės pynimas)
Penktadienis **06-28**	8.00 – 9.00	Atvykimas (pynės konstravimas ant gimnazijos tvoros)
	9.00 – 10.30	Pasiruošimas „Mokslininko gimtadieniui"
	10.30 – 12.00	Kino filmas
	12.00 – 12.30	Pietūs
	12.30 – 13.30	Foto koliažų kūrimas
	13.30-15.30	Edukacinė programa „Mokslininko gimtadienis"
	15.30 – 16.00	Stovyklos uždarymas
	16.00 – 17.00	Išvykimas

Co-funded by the
Erasmus+ Programme
of the European Union

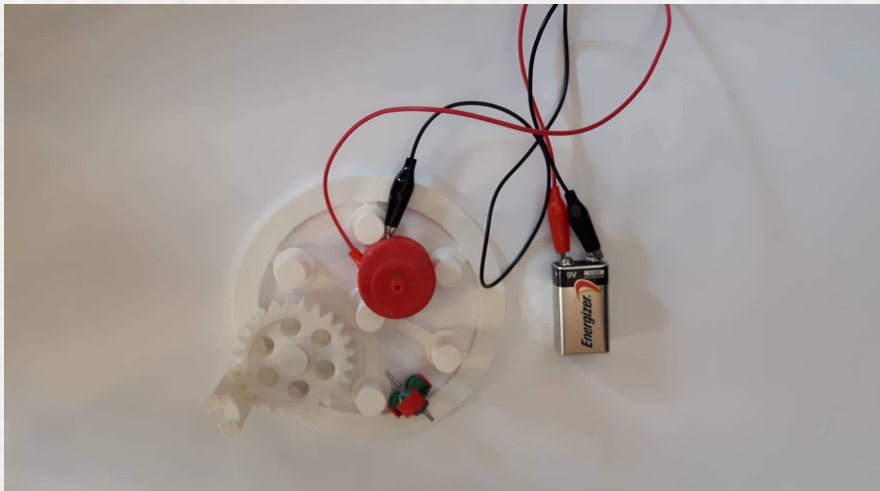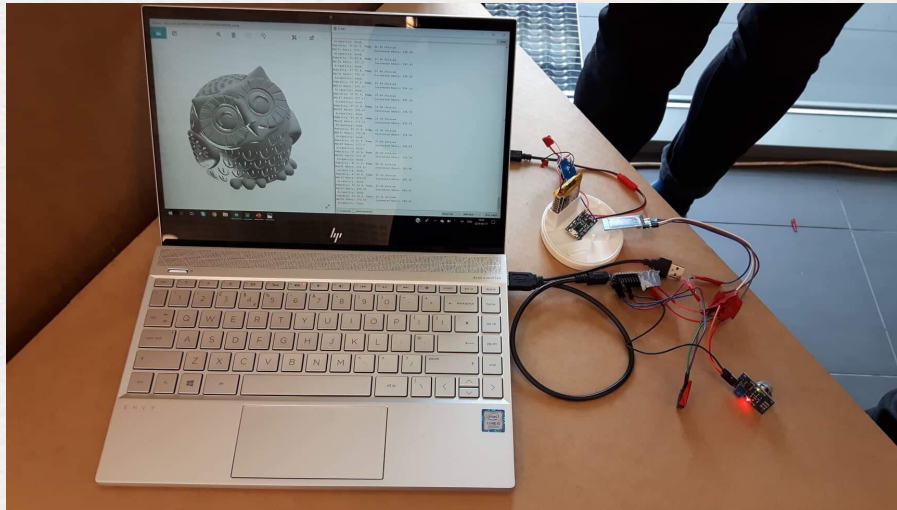# National methodological-practical conference "Challenges of educational paradigm in a changing society"

Topic: "STEM is our PIN code"

Speaker: teacher Daiva Railiene

Place: Siauliai "Romuva" gymnasium

Date: May 16, 2019

Future Engineering

"Vakaris Toleikis, Eimantas Kardasius and Modestas Stravinskas participated in an event held by Vilniaus Gedimino technology university or VGTU for short. There we presented a home climate system and an electric motor which was built mostly from 3D printed parts. The home climate system was made by Vakaris Toleikis and Eimantas Kardasius. The home system used an Arduino nano, temperature and humidity sensor a gas sensor and a Bluetooth module so the entire system could be controlled from a phone. The system checked the airs temperature, humidity and the levels of other gases such as carbon dioxide then displayed the readings on the screen. The purpose of this is to let the user know of the air quality in the house and warn them if there are dangerous levels of carbon dioxide in the room which are not always visible. The project was not entirely finished and was missing the housing which was meant to hold all the Arduino components. The other project was an electric motor made with 3d printed parts except for the magnet and copper wires which are essential for the motor to work. The plastic motor was made by Modestas Stravinskas. The motors purpose was to do simpler jobs that don't require a very sturdy motor this includes fans, toys or other small gadgets. Since the outside of the motor case is entirely 3D printed it can be changed to fit or attach to other objects this gives it a lot of versatility. Because the motor is mostly plastic it can be melted down leaving only the metal parts that can then be put in another motor."

Modestas Stravinskas

Martynas' interview

What activity did you like the most and why?

What are the advantages of participating in this project?

If you hadn't had a chanche to participate in this project, what wouldn't you have learnt?

Eimantas said that he liked the space challenge, he learned programming, English and social skills and he thinks that this project is really fun and interesting.

Gytis said that he also liked the space challenge because it was something new, he gained a lot of new experience and learned how to make a program for EV3 and arduino. He is glad that he had a chance to participate in this project. He thinks STEAM activities have been interesting and really fun.

Vakaris said that he liked learning new things with arduino, he got a lot of experience. If he hadn't had a chance to participate in this project, he wouldn't have learnt how to create programs with EV3 and he thinks that this project is amazing.

Aiste said that she liked doing space challenge and she thinks that this project is really wonderful. She really enjoyed building a tower that withstands the earthquake because it was really interesting to her. The advantages were improving English skills and getting a lot of new experience. She thinks that this project has been wonderful and really interesting.

Thoughts about the project (students and teachers)