na dole jest nowe rozpisanko

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| --- | --- | --- |
| Number | Text | Osoba |
| 1 | Hello everyone, we are the Facecoders and we want to invite you to our final presentation. As you may recall my name is XXX, this is YYY, ZZZ and WWW. We are the Information Technology students at the International Faculty of Engineering. The supervisor of our project is Ph. D. Piotr Napieralski, who gave us the topic of our work, which is “*Computational Emotion and Affective Computing for detecting User emotional information*”. | dr hab. inż. |
| 2 | Today we want to present the solution for the problem we have found. We will talk about our implementation, possible usage and the methods we have used to create the solution. But first, let me just quickly recap the background of our problem. Could you imagine talking to somebody, and not be able to read his emotions? Relying only on the content and pure words? Well, for some children and teenagers with diagnosed spectrum of autism it is a daily struggle. Due to that, we have conducted a research about the available methods of verifying the emotions using devices, to which most people have access everyday - smartphones. The result of research led us to define the problem. |  |
| 3 | *“Inaccuracy in emotion detection process, due to lack of verification methods.”* Before we have even started thinking about the solution, we have realised how important it will be.  Especially for those, who genetically have the problem with differentiating emotions expressed by other people. During the interview conducted with Mrs. Małgorzata Kraska,the headmaster of the ASPI foundation, we learned that access to a tool that would allow effective detection of emotions would have an amazing impact on the development of the foundations' beneficiaries. The possibility of using it during therapy, games or conversations would be a great help. The only limit that we have found is the complexity of the tool. Our target group are people with the autism spectrum, therefore the tool must be designed to their needs, taking into account its appearance, method of use and information provided. |  |
| 4  text+slide | When choosing the most appropriate solution to the problem, we had to take into consideration many aspects. Although the most important one was the mobility of the tool. It was one of the most important factors for which we decided to choose the creation of a mobile application. |  |
| 5 | Because our project is designed to be in a form of mobile application, one important part of creating the solution was an interface design. In process of the interface design there were discussed different versions and propositions concerning the color gama, number and position of interactive buttons. The prototype was made in “Adobe XD” and the interface itself was made in ”Android Studio”. To check the efficiency, simplicity and understanding of an interface from user point of view our team visited the ASPI Foundation to gather feedback from the main target group of our application. This meeting helped us to highlight the problem present in a prototype and create a new version with all the requests and suggestions taken into account. |  |
| 6 | This is the main screen from our first prototype, second and the application itself, where we changed a little the functionality. Due to the unnecessary settings section, we decided to create two separate buttons instead, which is one of many ideas gave us by the teenagers testing our prototype. |  |
| 7 | As for the internal implementation, the whole code for the application was written in Java in order to be able to launch the app on mobile devices supported by Android operating system. This decision also simplified the peripheral communication between code and the device by providing a powerful APIs. In particular using both google.hardware.camera and google.hardware.camera2 APIs to get an image from the cameras of the phone and save it as a bitmap (array of pixels). |  |
| 8 | The requirements to run this project are as simple as possible, because only smartphone with any Android System version is necessary. |  |
| 9 | There is one more thing we should discuss while talking about our solution. How does exactly our application work? Using the deep learning algorithm, which in the simplest way is just a machine learning based on the shown photos of people faces expressing proper emotions. To train our machine, we used Keggle Face Dataset, since it is free for educational purposes and provides over 28,000 pictures of faces with dimensions 48 by 48 pixels, all categorised into seven groups (anger, fear, disgust, happiness, neutral, sadness and surprise). |  |
| 10 | The operation of our application is visible on the screen. Starting from the screen representing our logo and team name, through the function selection screen, ending with the main application task - face and emotion detection with results. |  |
| 11 | The solution we present provides a powerful affective computing tools to detect and distinguish emotions. The efficiency of this solution depends on an application area.  Because of a nonideal accuracy our application cannot be used as a security system or an artificial psychologist, but still it can be integrated even to those if we increase a dataset and add additional functionalities.  However it is a perfect tool which can help to teach children with autism to distinguish emotions in an interactive and simple way. |  |

USEFUL THINGS

1. Slide 1 First slide covers the Title of your Project/Research Your Supervisor and co-supervisor Name the all of your team members Along with your identity numbers
2. [3.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-3-638.jpg?cb=1518519956) Slide 2 In this slide you just write the content of your this presentation what you are about to discuss right now about your project
3. [4.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-4-638.jpg?cb=1518519956) Slide 2 Briefly discuss which systems made already relates with your project What improvements you made in your project Background / introduction of your system Which main points/issues your system covers
4. [5.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-5-638.jpg?cb=1518519956) Slide 3 Importance and need of your project What ever you observed before starting of this system, what main problem/limitations you found that this problem should be eliminated. What kinds of people can use your system and where it can be used
5. [6.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-6-638.jpg?cb=1518519956) Slide 4 Features of your Project What are the main features of your system What comfort and easiness you are going to provide to your end user
6. [7.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-7-638.jpg?cb=1518519956) Slide 5 Tools and Technologies Which technologies you used while developing your project, just make audience clear about what, where you needed that technology and why you have preferred that particular technology for your project why not others
7. [8.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-8-638.jpg?cb=1518519956) Slide 6 System/User requirements What are prerequisite of a system to run this project If system is common user based then what are the requirements that a public should fulfill.
8. [9.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-9-638.jpg?cb=1518519956) Slide 7 to --- Diagrams ER Diagram Use case Diagram Activity Diagram System Diagram Model (waterfall, spiral etc) Gantt chart
9. [10.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-10-638.jpg?cb=1518519956) Slide 8 to --- Snapshots of system Take main and important snaps of your project
10. [11.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-11-638.jpg?cb=1518519956) Slide 9 Finally conclude your project
11. [12.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-12-638.jpg?cb=1518519956) Slide 10 Briefly tell about your future work if applicable AND/OR Otherwise give references that you got any help from internet give reference link of that source
12. [13.](https://image.slidesharecdn.com/stepsformakingpresentationoffinalyearproject-161215203845/95/steps-for-making-presentation-of-final-year-project-13-638.jpg?cb=1518519956) Some important tips for your final year presentation Try to minimize words in your presentation as possible as you can Maximize your verbal communication Not to mention any disadvantage of your system, instead you can say that is limitation of our project and we will try to accomplish it in our future work Your whole concentration should be to the audience not the slides Before any from the audience says “I HAVE A QUESTION” best approach is you should ask “ANY QUESTION” Take up to 5sec break at each slide even after you are finished Try to mention the chief guest in your audience while you are presenting Say something good in favor of audience when you have finished the presentation

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| Number | Topic | Text | Osoba |
| 1 | Introduction | Hello everyone, we are the Facecoders(because all of us have face Xd) and we want to invite you to our final presentation. As you may recall my name is XXX, this is YYY, ZZZ and WWW. We are the Information Technology students at the International Faculty of Engineering. The supervisor of our project is Ph. D. Piotr Napieralski.  Today we gonna present the solution for the problem we have found concerning Affective computing and Emotion recognition. | Yura |
| 2 | Presentation outline/plan | Our presentation consists of four significant elements:  Firstly, we will get acquainted with the topic and the problem finding process.  Secondary, look into the solution implementation.  Present the result of our work.  And finally bring down the curtain with the conclusions. /come to the conclusion | Yura |
| 3/4 | Research  Brainstorms articles - research methods | The study area that we were working on was “Computational emotion and Affective computing for detecting User emotional information”.  As the PBL course started and we received the topic, we thought of the areas, which might be somehow connected to our topic(it). This (thoughts) lead us to many different directions of the further research.  Starting from depression detection, through analysis of advertisement’s effectiveness, we came to the research towards autism therapy.  Dozens of brainstorms were done and even more articles were read. We made a stakeholders analysis, and consulted the issue with a specialist. Applied such methods as ishikawa or “5 whys method”, in order to better recognise the problem and make an appropriate solution. | Yura |
| 5 | Problem statement | All of it(this) finally lead us to the definition of a problem statement: “Inaccuracy in emotion detection process, due to lack of verification methods”.  As a solution we decided to create an application which can solve this problem by providing an accurate result without the use of addition devices | Yura |
| 5 | our goal | Our goal was to create a tool that will be suitable for people with autism and will detect emotions correctly. As you may or may not know, authistic people have huge difficulty with recognition of any stimuli, especially distinguishing between happiness, sadness, fear or anger. At first, we wanted our tool to detect face from the photo and train program based on the huge faces database and finally detect the emotion of a user. But very soon we have realised, such tools already exist, but require specific and expensive equipment. That forced us to think about a way of detecting emotions that could be available for everyone and easily accessible. | Mariusz |
| 6 | Why mobile | When choosing the most appropriate solution to the problem, we had to take into consideration many aspects. The most important one was availability and mobility. Such solution should also be free accessible and easy for everyone to use. Therefore we decided to create mobile application. The advantage of this solution lies primarily in the fact that it is very easy to get the equipment needed for the tool to be used, assuming that the user does not have it yet. | Mariusz |
| 7 | Who was responsible for what | After we had finally decided, what we want to acquire as the solution, the role management was our main priority. The most difficult choice to make, was about the team leader. During the discussion we agreed that the leader should be confident, good at making decisions, have high communication skills and should inspire others. Votes were clear, Michał was the best one to deal with such a burden. Other roles had much lower responsibilities to deal with, as Ania wanted to create a design, Yura to be responsible for testing and me, the only person who was in touch with the charity foundation, to be responsible for consulting results with the target group. | Mariusz |
| 8 | Stakeholders analysis | We also made a stakeholder analysis in order to verify if there will be any need/use of our solution.  In the period when we were just working on the concept, we thought how hard it would be to live without this basic ability of emotion recognition. But unfortunately some people do face this problem, people with diagnosed autism disorder.  We contacted the ASPI foundation in order to propose a possible solution to help such people: an application that can detect emotion based on facial expression in an easy and entertaining way. As we received an agreement during the development process we were mainly focusing on the need of our main stakeholders group. | Mariusz |
| 9 | tools | Because our project is designed to be in a form of mobile application, one important part of creating the solution was an interface design. In process of the interface design different versions and propositions were discussed concerning the color gama, number and position of interactive buttons. The prototype was made in “Adobe Xd” and the interface itself was made in ”Android Studio”. | Ania |
| 10 | technologies | As for the internal implementation, the whole code for the application was written in Java in order to be able to launch the app on mobile devices supported by Android operating system. This decision also simplified the peripheral communication between code and the device by providing a powerful APIs. In particular using both google.hardware.camera and google.hardware.camera2 APIs to get an image from the cameras of the phone and save it as a bitmap (array of pixels). | Ania |
| 11 | Interface changes | The graphical interface was created by an iterative method.  To check the efficiency, simplicity and understanding of an interface from user point of view our team visited the ASPI Foundation to gather feedback from the main target group of our application. This meeting helped us to highlight the problem present in a prototype and create a new version with all the requests and suggestions taken into account.  As you may notice, the very first prototype differ significantly from the last one, used as an application interface.  Interfejs powstał na drodze komunikacji i powstawał metodą iteracyjnych metod projektowania. | Ania |
| 12 | Application under the hood | I'd like to brief you on what happens under the hood of our applications. Yet before we even started thinking about coding we needed to choose a technology allowing us to achieve best results. We decided to use Google’s TensorFlow library as it is a popular and reliable open source tool, that allows us to train classifier with our own custom dataset. | Michał |
| 13 | Database | Speaking of dataset, we decided to use Keggle Face Dataset, since it is free for educational purposes and provides over 28,000 pictures of faces with dimensions 48 by 48 pixels, all categorised into seven groups (anger, fear, disgust, happiness, neutral, sadness and surprise). Moreover it comes with already separated testing images allowing as to measure effectiveness of our work. | Michał |
|  | Photo preparation | After fetching the image from the phone camera we need to adjust it to match the dataset. First, we Google Vision API to extract one most visible face out of the picture and crop it to match 1:1 ratio. Then we transform image to grayscale, since the colour of the photo does not determine any information related with emotions. At the end image is scaled to 48 by 48 size. | Michał |
| 14 | Results | Such prepared photo is put to analysis by our trained classifier and outputted results are presented to the user on the screen. As you can see, the application is capable of determining all 7 emotions. | Michał |
|  | Diagram analysis | During synthetic test, where test images were put through analysis and results verified, we achieved effectiveness oscillating form 20% to 75%, dependently on a given emotion. Such a huge variations comes from uneven distribution of images in the dataset, nevertheless those numbers are impressive, given that determination process is based purely on a camera feedback.  In a real test, made on 10 different people/subjects results were very similar. | Michał |
| 15 | requirements to run app | Thanks to not using cloud-based solution and implementing low resolution dataset the requirements to run this application are very low. Any smartphone with at least Android 5.0 is enough to have a great experience. | Michał |
| 16 | Conclusions | Our goal has been achieved - we have created a mobile tool designed for recognizing emotions from facial expressions, which interface is suitable for people with autism. However, it is still a prototype that will be improved depending on test results in more diverse conditions and on more people. We are deeply convinced that the development of this project will facilitate the functioning of many people in society, and will contribute to the development of information technology for society.  udalo sie stworzyc w pełni działająca wersję aplikacji  jest to nadal prototyp, który będzie rozwijany  powinien być przetestowany w różnych warunkach i na większej ilości osób  głęboko wierzymy w rozwijanie tego projektu oraz to, że może on doprowadzić do ułatwienia życia wielu osobom, a także przyczyni się do rozwoju informatyki dla społeczeństwa | Ania |
| 17 | Questions |  |  |

people with autism have problem with detecting emotions, which ability is the most important in creating friendships and all interpersonal relations.