



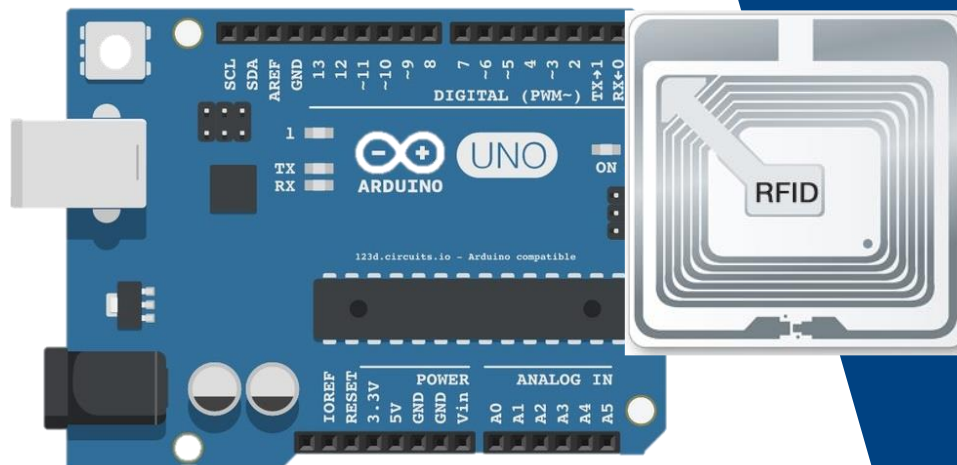
Отчет об участии в конференции *2nd International Conference on Mechatronics and Robotics Engineering* (г. Ницца, Франция)

Сапарходжаев Н.П., PhD, зав. лабораторией «ИТ в образовании»

Семинар **«Научная среда»**
02 марта 2016 г.

Nurbek Saparkhojayev,
PhD, Associate Professor, Head of “IT In Education” Scientific Lab

Seminar **‘Research Wednesday’**
02 March, 2016



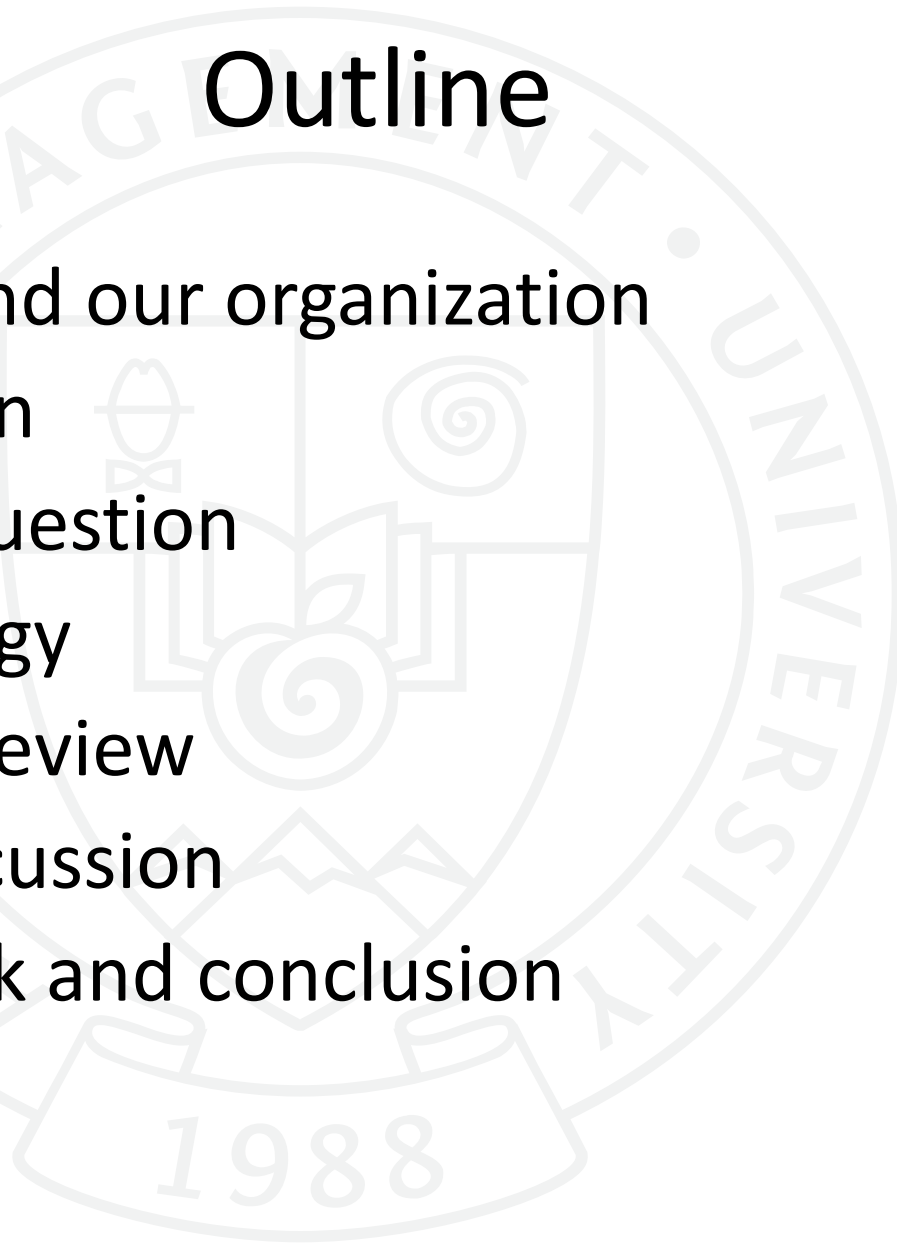
IMPLEMENTATION OF RFID - BASED CAR IGNITION SYSTEM (CIS) IN KAZAKHSTAN

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KURYMBAYEV ASKHAT, Senior Student



Outline

- About us and our organization
- Introduction
- Research question
- Methodology
- Literature review
- Results discussion
- Future work and conclusion
- Q&A



About us and our organization

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- Almaty Management University (AlmaU) - entrepreneurial and socially-responsible university of world level
- AlmaU is best business school in Kazakhstan and CA according to Eduniversal
- “IT in Education” -> developing modern solutions with use of high technologies and smart systems
- Solid background in many different areas
- Currently we are working on developing smart sensor systems for different areas in Kazakhstan

<http://www.almau.edu.kz/en>

Introduction

- RFID is a rapidly growing technology
- RFID enables tracking and controlling of items
- It uses radio waves to transfer data from an electronic tag
- It consists of:
 - RFID Reader;
 - RFID Antenna;
 - RFID transponder (or tag);
 - Host computer.

Research question



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- How can we develop **cheap** and **efficient** system with the use of RFID technology for securing cars from possible stealing?
- Can we protect our cars from possible drive-away by our children while we are on holiday and in different country?

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Methodology

- We used RFID technology as main, key platform for our system
- We have used Arduino Microcontroller for connecting wires and controlling them
- We have developed this system on the basis of University ID cards
- Program was written on Arduino programming language based on C/C ++



Literature review

- Pandora DXL 3910 and Starline B64 Dialog CAN
- But there are at least some disadvantages that we found:
- Flexible programming, complexity and abundance of options confuses even experienced owners of automotive electronics (in Pandora);
- The lack of function of the engine startup, and base system is not provided for nonvolatile mode (in Starline);
- And mainly, these two systems are expensive, and considering problems with our currency devaluation, most of our people can not afford them.

Literature review



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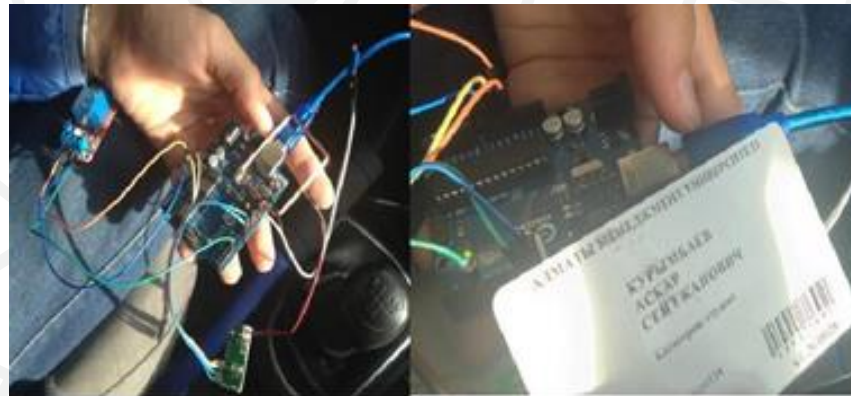


Results discussion



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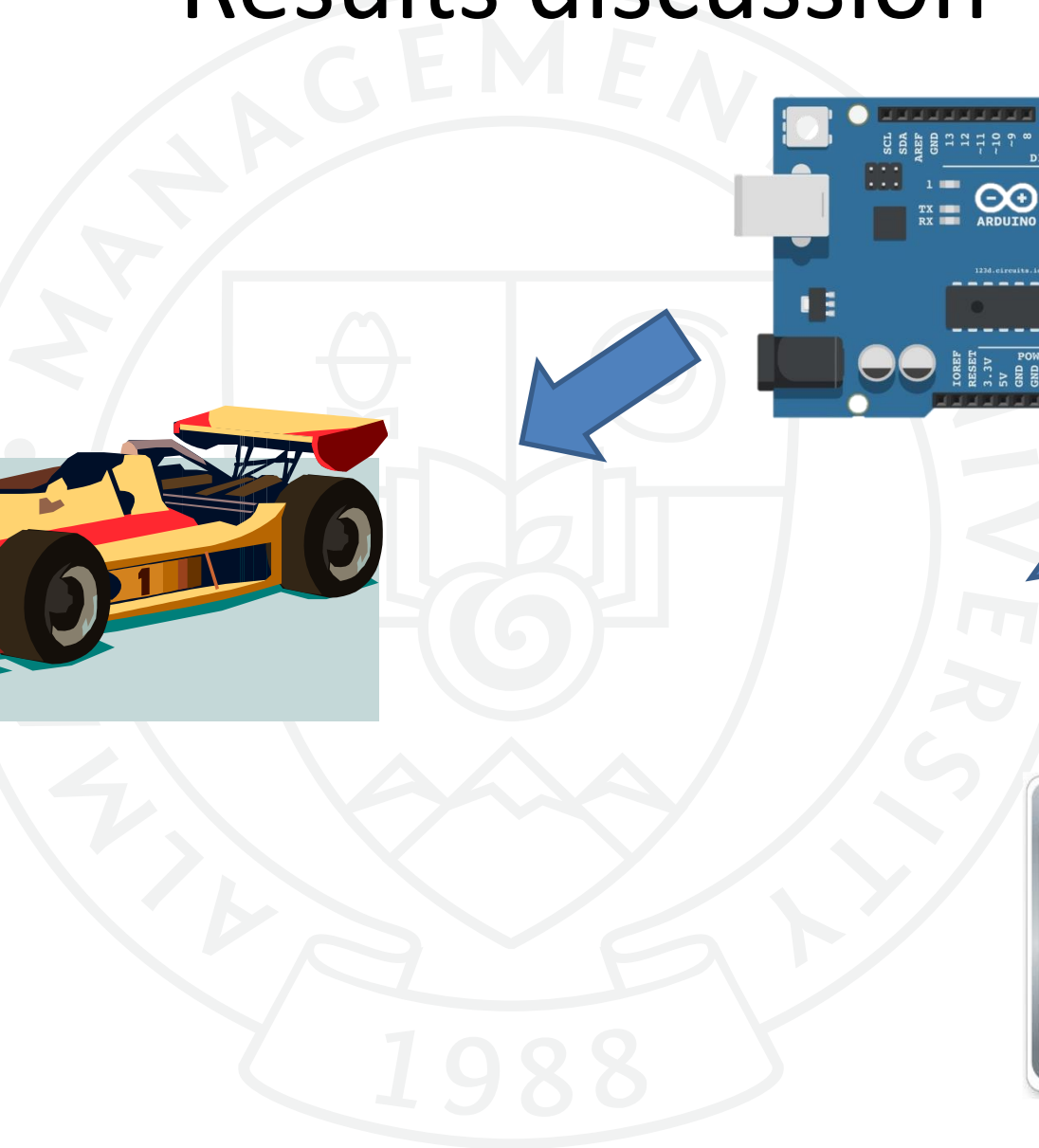
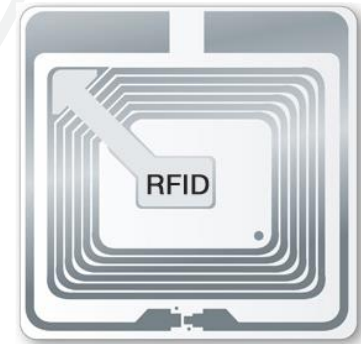
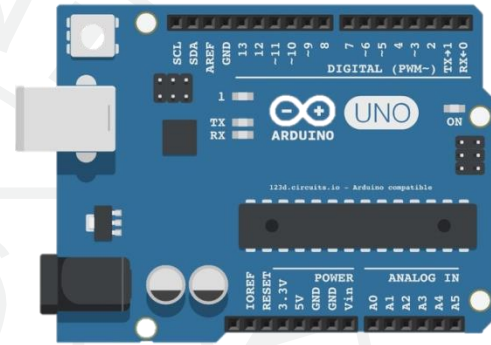
- Considering all these facts, we have developed our system;
- We have two different scenarios:
 - 1) One card-key for one car, only one person has an access to the car's ignition.
 - 2) Seven key card for access to the car (e.g. case of large companies in the state of multiple drivers, to have access to the same vehicle).



Results discussion



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Future work and conclusion



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- Plan to extend this research by adding some functionalities;
- Meanwhile, we would like to combine all our previous research works and build one unique system based on RFID-technology for University;
- Need to develop our own data encryption algorithm;
- We plan to add GSM and GPRS systems and make it more advanced.

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Group photo from the Conference





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Q&A

- Questions?
- Comments?
- We need to hear your feedback!

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