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Thermal optimization of the "Intelligent Power Distributor" using CFD method.

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Description of topic:
The main goal of this internship topic is to conduct heat transfer simulation for Intelligent Power Distributor (IPD) in a few variants of the construction. Base on the simulation optimal variant of construction will be chosen. During the practice, student get skills of preparing the simply 3D model and conduct heat transfer simulation for it. Moreover, the student gets an overview of the whole NICA-MPD-Platform project and the issue of temperature stability.

Student internship goals: (estimated time of work)
• Get acquainted with basic technical documentation of the IPD (3 days)
• Prepare geometry model of the IPD in current variant (5 days)
• Conduct heart transfer simulation for model IPD (3 days)
• Prepare analysis of results (2 days)
• Propose upgrade of construction (2 days)
• Prepare upgraded geometry model of the IPD (2 days)
• Conduct heart transfer simulation for model upgraded IPD (3 days)
• Prepare analysis of results (5 days)
• Prepare final report (5 days)
• Prepare final presentation (2 days)

Total time of work: 32 days + preliminary consultation and lectures

Student Learning Outcomes:
• Interpret of technical documentation (of the IPD)
• Use Autodesk Inventor Pro to create simply 3D geometry
• Use Autodesk CFD to conduct heat transfer and gas flow simulation
• Produce a formal technical documentation
• Produce a simply engineering drawing

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