

# **Pengembangan Media Pendidikan *Intelligent Sound Direction Detector* Sebagai Media Pembelajaran Robotika**

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## **ABSTRAK**

Penelitian pengembangan yang berupa rancang bangun perangkat keras (*hardware*) dan perangkat lunak (*software*) media model robot untuk pembelajaran matakuliah Robotika ini bertujuan untuk memperoleh: (1) Media model robot *intelligent sound direction detector* (*hardware, software, dan manual instructions*) untuk pembelajaran matakuliah Robotika, yang mampu menumbuhkan kompetensi dan keterampilan intelektual, sosial dan personal individu mahasiswa. (2) Mendapatkan hasil implementasi (validasi dan verifikasi) media model robot pada matakuliah Robotika melalui proses *pembelajaran yang aktif, inovatif, kreatif, efektif dan menyenangkan* (PAIKEM). (3) Peningkatan prestasi hasil belajar mahasiswa khususnya pada matakuliah Robotika.

Penelitian dengan pendekatan *Research and Development* (R & D) ini, terdiri dari dua bagian yaitu: (1) Pengembangan media model robot *intelligent sound direction detector* dan program fungsi operasional robot, yang meliputi tahap-tahap: analisis kebutuhan sistem, desain sistem, pembuatan model robot dan kode program, menguji dan menemukan beberapa tipe kesalahan untuk perbaikan, dan pengujian produk dalam pembelajaran. Materi pembelajaran dikaji dan dikemas berdasar kompetensi yang terdapat pada silabi dan sekuensial materi. (2) Pengujian produk media model robot yang dilakukan kepada mahasiswa pendidikan Teknik Elektro FT UNY. Pengujian dilakukan melalui pendekatan pembelajaran kooperatif dengan strategi *problem base* dan metode *the power of two*. Teknik pengambilan data dilakukan dengan observasi, dokumentasi, dan angket. Teknik analisis data yang digunakan adalah deskriptif kuantitatif dan evaluatif.

Berdasar hasil penelitian diperoleh: (1) Media model robot *intelligent sound direction detector* yang meliputi perangkat keras dan perangkat lunak. (2) Program fungsi operasional robot yang dikemas melalui tugas-tugas. (3) Slide media robot dalam mendukung pembelajaran. (4) Kinerja produk media model robot *intelligent sound direction detector* untuk mendukung peningkatan prestasi hasil belajar mahasiswa. (5) Kelayakan media model robot untuk meningkatkan kualitas pembelajaran matakuliah Robotika/kendali, dan kualitas hasil belajar mahasiswa.

Kata kunci: media pembelajaran, model robot, *sound direction detector*.

## **Development of Intelligent Educational Media Sound Direction Detector As a Media Learning Robotics**

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### **ABSTRACT**

Development of research in the form of hardware design (hardware) and software (software) models media Robotics robot learning course aims to obtain: (1) Model Media sound intelligent robot direction detector (hardware, software, and manual instructions) for learning Robotics courses, which can grow competence and intellectual skills, personal social and individual students. (2) Getting the implementation (validation and verification) media model of the robot on Robotics course through a process of active learning, innovative, creative, effective and fun (PAIKEM). (3) Increasing student achievement of learning outcomes especially in Robotics course.

Research approach Research and Development (R & D), consists of two parts: (1) development of intelligent robot models media sound detector direction and operational functions of the robot program, which includes the steps of: system requirements analysis, system design, manufacture robot models and program code, test it and find some type of error for improvement, learning and testing products. Reviewed and packaged learning materials based competencies contained in the syllabus and sequential material. (2) Testing of robotic models of media products made to students of Electrical Engineering FT UNY education. Tests carried out through cooperative learning approach to the problem of base strategies and methods of the power of two. The technique of data collection is done by observation, documentation, and questionnaires. The data analysis technique used is quantitative descriptive and evaluative.

Based on the results obtained: (1) Model Media sound intelligent robot direction detector which includes hardware and software. (2) The operational functions of the robot are packed with tasks. (3) Slide the media in support of learning robots. (4) Product performance intelligent robot models media sound detector direction to support the achievement of improved student learning outcomes. (5) Feasibility media robot models to improve the quality of learning subjects Robotics / control, and quality of student learning outcomes.

Keywords: media, robot models, sound direction detector.