

## An Extra-Curricular Program to Enhance Student Outcome of a Class

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**Abstract :** Application of single board microcontrollers is an important skill even for non-electronic engineering major students. Arduino board is widely utilized in engineering classes of the Yeungnam University of South Korea. In those classes, students are subjected to learn how to use various sensor components related to motion, sound, light, and so on as well as physical quantities. Students are grouped into several teams, and each team consists of 4~5 students. Many students are not motivated enough to learn those skills. An extracurricular program was planned to improve this problem. The extracurricular program was held as an international boot camp where students from three different countries were invited to participate. 10 students groups were formed, and each team was consisted of students having different nationality. The camp was 4 days long and wrapped up with competitions. During the camp, every student was assigned to design and make a two wheel robot. The competition was carried out in two different areas; individual and group performances. As most skills dealt in the class are used to build the robot, students are much motivated to review the whole subjects of the class. All students were surveyed after the program. The survey shows that the skills studied in the class are greatly improved, and practically understood. Staying at the dormitory and teaming with international students are help students improve communication skills. Competition at the camp was found as a key element to inspire and attract students for voluntary participation.

**Keywords :** extracurricular program, robot, Arduino board, international camp, competition

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