SUNGJUN KIM

kxt1234@naver.com

Wolgye-dong, Nowon-gu,
Seoul, Republic of Korea

ABOUT ME

-Research Interest-

Embedded Control, Magnetic Robot, Robot Arm Control, Localization System, Motor Control

-Hobbies-

Playing the bass guitar, Workout & Jogging, Making board games, Learning foreign languages, managing databases about me as form

EDUCATION

Songtan high school *(Gyeonggi-do, South Korea)* *2013.03 - 2016.02*

Kwangwoon University *(Seoul, South Korea)* *2016.03 - 2023.02*
- Major: Department of Robotics
- GPA: 3.92/4.5

Kwangwoon Graduate School *(Seoul, South Korea)* *2023.03 - 2025.02*
- Major: Department of Robotics
- Lab: Magnetic Robotics Lab(MRL) (Jaekwang Nam Prof.)

RESEARCH

Kim, Sungjun, et al. "Electrical Optimization Method Based on a Novel Arrangement of the Magnetic Navigation System with Gradient and Uniform Saddle Coils." Sensors 22.15 (2022): 5603.

Im Seyeong, et al. "Robot-Aided Magnetic Navigation System for Wireless Capsule Manipulation." Micromachines 14.2 (2023): 269.

Im Seyeong, et al. "Slope Control of a Wheelchair Simulator System Based on Haptic AC Using a Disturbance Observer" (2022): 732-733.

PROJECTS

Battle Robot *2016.07 - 2023.08*
- MCU: ATMega128

Line Tracer *2016.07 - 2023.08*
- MCU: ATMega128

A Cocktail Maker *2016.09 - 2023.11*
- MCU: ATMega128
- UART Communication with MFC
- 4 pump motors that are controlled by PWM

Motion Imitation by Artificial Rubber Muscle(MI-ARM) *2020.07 - 2020.11*
- MCU: ATMega128
- Using PID control in Pneumatic artificial muscle system
- Set a pneumatic system and hand-made air compressors

Smart Room Project *2021.03 - 2021.06*
- MCU: ATMega128
- Sensors: LM35, Potentiometer, CDS, Thermistor, PSD, IR
- Actuators: DC, Servo, AX-12W, Stepping
- Filters: FIR, IIR, Kalman

Motor Control and Robot Arm Simulation *2021.09 - 2021.11*
- MCU: ATMega128
- ODE & MFC C++ simulation
- Motor PID current/velocity/position cascade control

Robot Arm Simulation with MATLAB *2021.11 - 2021.12*
- 1-3DOF robot arm simulation
- Using Lagrangian mechanics
- Free fall model, Parameter estimation, PID Control etc.

Position Control Simulation of SPMSM *2021.09 - 2021.12*
- Control system design project
- Using state-space equation control

Capstone Project: Wheelchair Simulator System *2022.01 - 2022.06*
- Mathematical Verification and Design of Hardware Architecture
- Circuit Design and MCU Environment Setup

ACTIVITIES

Academic Group: BARAM *2016.03 - 2023.02*
- Executive activities(2021)
- Teaching experiences(Embedded C and MCU)(2020~2021)
- Periodic project submissions(2016~2022)

Undergraduate Research Student: MRL *2021.06 - 2023.02*
- Building lab's base systems
- Magnetic Helical Robot Project(2021)
- Magnetic Navigation System(MNS) setup project(2022)
- Control setup between SCARA(RPA100-4B) and ROS1(2022)
- Environmental setup connecting CSW5550(PSU) and ROS1(2022)

STEAMCUP Contest *2022.12*
- Participating Turtlebot3 racing contest
- ROS1 project

HONORS/AWARDS

State Scholarship *2016.03-2022.09*

Scholarship of Bima *2016.03-2022.09*

Scholarship of Hanul *2021.09*

88Robot Day: Share Challenge *2023.08*
a prize of encouragement

SKILLS

Programming Languages
C, C++, Embedded C, Python, MATLAB & Simulink

Languages
Korean(Native), English(Advanced), Japanese(Advanced), Russian(Basic)

Certificates
JLPT N2 (2019), TOEIC Speaking score:140(IH) (2023)

Computer Skills
Microsoft Word/Excel/PowerPoint, Adobe Photoshop/Premiere Pro, PSPice, ROS1