Matas Manawakul

ROBOTICS ENGINEERING STUDENT

Experience

AVATAR XPRIZE - FIBO XPRIZE

| The competition that aims to create an avatar system that can transport human presence to a remote location in real time. |

Responsibilities:

Hardware Architecture Team

Avatar Head

- Avatar Head Controller using HTC VIVE Inverse Kinematics and PID controller

Avatar Arm

- Simulation to verify the optimization of Avatar Arm with Matlab

Avatar Base

- State Estimator of Z-axis gyroscope sensor in IMU sensor (Kalman filter)
- Low-level control system with Mbed OS for omnidirectional wheels

CATESIAN ROBOT CLASS PROJECT

| Developing a 4 DOF Cartesian Robot that can grab a rod and pass through a maze without touching the rails |

Responsibilities:

Robot modeling and Control

- DC motor modeling
- Parameters estimation of DC motor with Matlab/Simulink
- PID Control Diagram / PID Tuning
- Trajectory Planning

Image Processing

- Using OpenCV to Capture the field and remove almost rails in the field
- Using Image Processing to enhance image to identify path for robot

AUTOMATED CHESS-PLAYING MANIPULATOR

| Developing a 5 DOF Serial Manipulator that can play chess automatically |

Responsibilities:

- Kinematics and Differential Kinematics Modeling
- Trajectory Generation
- Control Design (Cascade PID Control) for each manipulator joint
- Kinematics and Control Simulation for Verification and Validation

INTERNSHIP

| Research and Development Department at CoXSys Robotics |

Responsibilities:

- Markdown Documents in Github
- Developing A prototype of manipulator simulation in web application platform

BACHELOR DEGREE THESIS

| Application of logical programable device to control omni tricycle ball balancing robot (Ballbot) |

Responsibilities:

- Ballbot Kinematics and Ballbot Dynamics Modeling
- Ballbot Simulation with LQR Controller with MATLAB Simulink
- Kinematics and Control Simulation for Verification with MATLAB Simscape
- Noisy Signal Modeling from Real Sensors with Python

Personal Profile

I am a fourth year student from The Institute of Field Robotics (FIBO), King Mongkut's University of Technology Thonburi. I am interested in Robotics especially Robot Modeling, Control System Embeded System programming and Simulation.

Contact Details

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Notable Skills

- Low-level Control Programming with c/c++ language
- Using MATLAB , Simulink and Simscape to Solve a problem related to robotics or Mathematics
- Intermediate python programming
- Can speaking and writing English for communication

Education

BACHELER DEGREE 2018 - 2022

The Institute of Field Robotics (FIBO), KMUTT, Bangkok
GPAX : 3.68

HIGH SCHOOL 2012 - 2017

TakhliPrachasan School, Nakhon Sawan
GPAX : 3.97