Mani Sankar Kukunuru

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ASPIRATION

Obtain a job in fields of Automotive, Robotics or Embedded systems where I could put my expertise in technical and professional advancement

EDUCATION

Masters in Electrical Engineering **GPA: 3.57**

Michigan Technological University Expected: Fall 2016

Coursework: Distributed Embedded Controls, Multi agent Simulation of Dynamic Systems, Intro to Robotics and Mechatronics, Linear Systems Theory and Design, Digital and Non Linear Controls, Embedded Systems

Bachelor of Technology in Electronics and Communications Engineering

PDPM Indian Institute of Information Technology Design and Manufacturing, Jabalpur, India

EXPERIENCE

Michigan Technological University – Teaching Assistant **(Sep '16 – Present)/(Jan '16 – May '16)**

Courses: Automotive Control Systems, Hardware/Software Integration

- Take course material and assist students in assignments and grade their papers

National Small Industries Corporation – Public Transportation management **(May '13 – Aug '13)**

- Programmed 8051 microcontroller of the system that tracks the location of vehicle and sends the location as SMS to the person who requests it

COMPUTER/TECHNICAL SKILLS

Languages: MATLAB, C, Embedded C, PLC programming, Assembly, LabVIEW, Python (Learning)
Tools: Simulink/Stateflow, MotoHawk, AB Micrologix, dSPACE, Keil, IAR, MotoTune, CANking, Solidworks
Microcontroller: Arduino UNO, TI-MSP430, ATMEGA16, AT89S52
Protocols: CAN, SPI, I2C, UART

PROJECTS

Automotive and controls Projects:

- PID control of remote Electronic throttle (Bosch DV-E5) via CAN with pedal position reference and feedback from throttle position sensor
- Model based Control System for Configurable Hybrid Vehicle using Simulink auto-code generation
- Autopilot for cruise using observer feedback control.
- Linear Quadratic Regulator for optimal control of altitude of a drone using Loop Transfer recovery
- Demonstrated working of Kalman Filter for predicting states of DC motor
- Traffic light management and Elevator Control Systems by PLC Programming using relay ladder logic in Allen Bradley RSlogix

Robotics and Embedded systems Projects:

- Swarm Simultaneous Localization and mapping (SLAM) with quadcopters (Currently working)
- Fuzzy control of swarm robots to reach predefined goals to simulate a Discrete Event Multi-agent system
- PID controller for DC motor (Quanser SRV-02) interfaced to a joystick to control the motion of motor.
- Modeling and Simulation of 3 joint robotic arm (FANUC based) to draw any given figure using inverse kinematics
- Embedded System design for Birthday Bot
- Data Acquisition using mobile nodes in a wireless sensor network using visible light communication
- Programmed ATMega16 to display a clock on a strip of LEDs when in motion

LABVIEW Projects:

- Demonstrated RF wireless communication using NI Elvis-II and LabVIEW
- Controlled a 2 DOF manipulator using biomechanical signals from a human operator using LABVIEW DAQ

EXTRACURRICULARS

- Referee for games Water polo, Inner tube Waterpolo, Frisbockey.