# Introduction

# Project Description

This project was started to build a network connected device which will accept user input as a sequence of instructions or in real time and perform them in order to use move and activate a drawing apparatus. This robot must ensure the safety of the drawing apparatus and secondly of itself.

## Purpose

The purpose of this project is to build a robot of

## Function and Performance

## Hardware

The hardware this project uses is a robot chassis, a microcontroller with prototyping kit and a beagle board.

## Software

The software this project uses is an in house command program written for the microcontroller and PHP script for the network facing aspect of the project on the beagle board.

## Scope of Completion

The project has met its expectations in terms of basic software. The hardware of the device needs to be tuned and made sturdier. The software needs to have its web interface improved for added usability and needs proper concurrency support as there is none at the moment.

# Hardware Design

## System Design

The hardware is divided into two main categories. The machine control mechanics and logic as well as the network accessibility and main control logic. The mechanics and logic is considered to be the robotics assembly chassis, motor drivers and microcontroller prototyping board.

s422-hardware-block.eps

## Subsystem Design

## System Intercommunication

The system communications involved are a USB RS-232 emulation for

# Software Design

## System Design

## Subsystem Design

## Arduino Functions Used

## System Intercommunication

# Development Software

# System Performance

## Component Testing

## System Test

# User Manual

## System Initialization

## System Operation

# Discussion

Issues with apache

Issues with Bluetooth

Issues with time management

# Appendix I