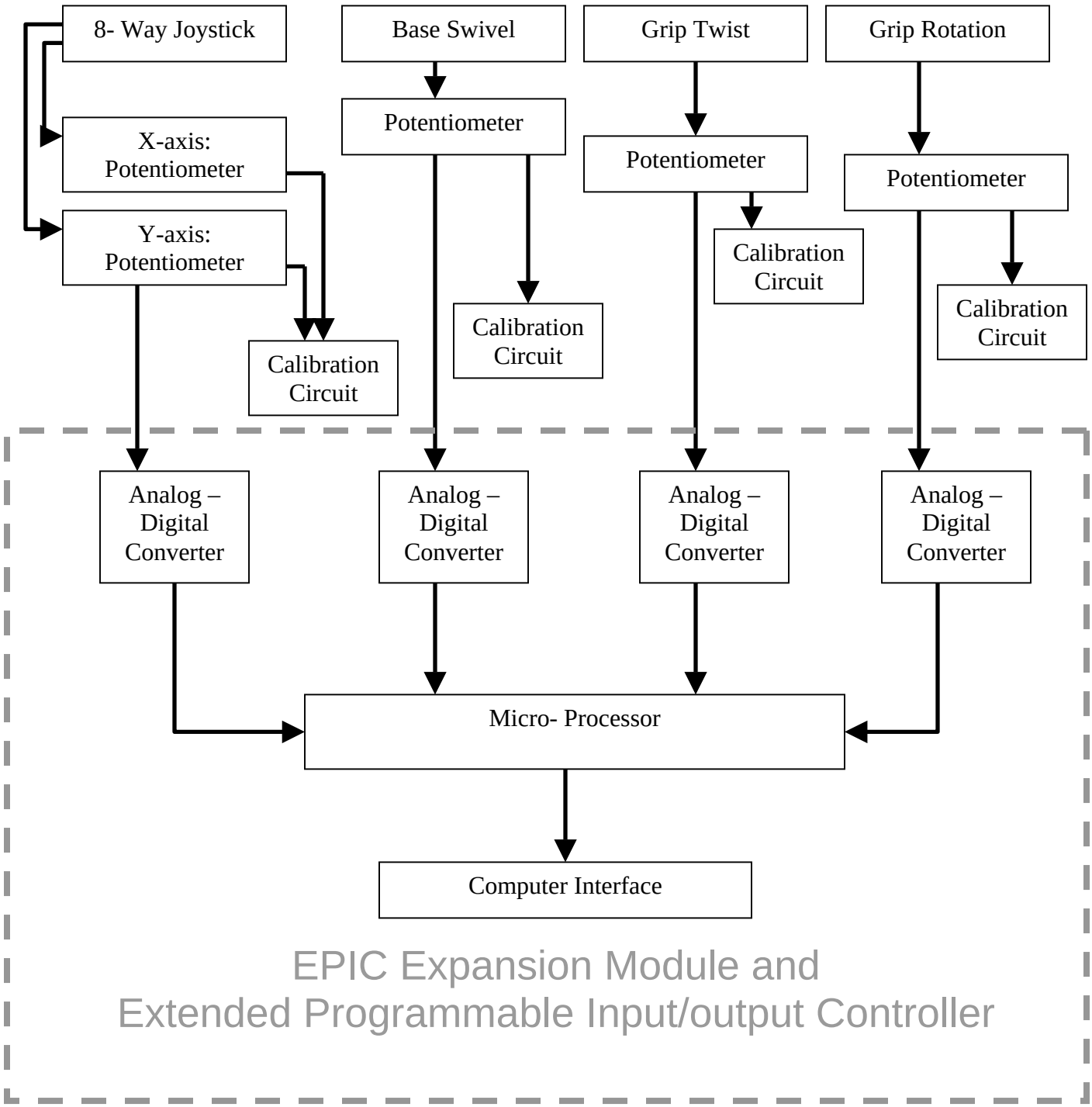
Project Narrative

The Gyrostick is a computer input device that simplifies multiple conventional movement controls into a one-handed input device. Potentiometers are interfaced to a CPU using an Epic USB interface card and Expansion module. The Gyrostick solves the problems presented by conventional multiple handed controls using a revolutionary design. The complex case design is created by *Solidworks* software. *Solidworks* will allow for the Gyrostick to be rapid prototyped. Also *Solidworks* will build all the mechanics needed to physically turn the potentiometers.

Potentiometers are used to take physical movements of the Gyrostick and produce analog signals. The Epic interface card has to be programmed to read the voltage drop across the potentiometers. Epic USB uses a program called epicenter to format the programming, which uses a form of Microsoft Visual C. Once the programming has been completed a PC will be able to recognize the Gyrostick as a video game controller. Flight Simulator 2002 will be used to implement the Gyrostick.

Included in this project is a calibration circuit. This circuit informs the user that the Gyrostick is in neutral alignment via LEDs. The circuit provided is a representative of the X and Y axes of the Gyrostick's movement. The change in voltage due to potentiometers physical movement provides an input into a single source comparator connected to the positive terminal. The comparator uses a reference voltage provided by a voltage divider connected to the negative terminal of the comparator. Based on the comparison of the positive and negative terminals the comparator's output is 0 or 5 volts. Digital logic is used to represent the output of the comparator to LEDs.


8- Way Joystick
Base Swivel
Grip Twist
Grip Rotation
Potentiometer
X-axis: Potentiometer
Potentiometer
Potentiometer
Y-axis: Potentiometer
Calibration Circuit
Calibration Circuit
Calibration Circuit
Calibration Circuit
Analog – Digital Converter
Analog – Digital Converter
Analog – Digital Converter
Analog – Digital Converter
Micro- Processor
Computer Interface
EPIC Expansion Module and
Extended Programmable Input/output Controller

Calibration Circuit