

THE HOVER TABLE

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OVERVIEW

ta·ble

/ˈtābəl/ 

noun

1. a piece of furniture with a flat top and one or more legs, providing a level surface on which objects may be placed, and that can be used for such purposes as eating, writing, working, or playing games.

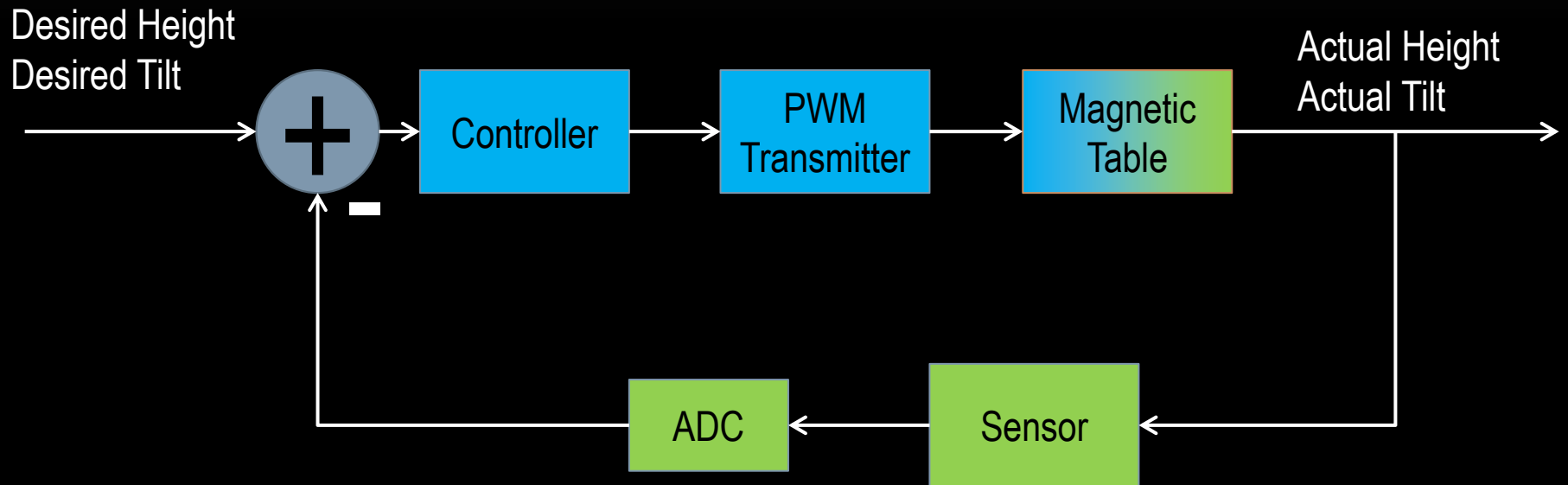
synonyms: [stand](#), [dining table](#), kitchen table, [coffee table](#); [More](#)

with a flat top and one or more legs

OVERVIEW



BLOCK DIAGRAM AND DIVISION OF WORK

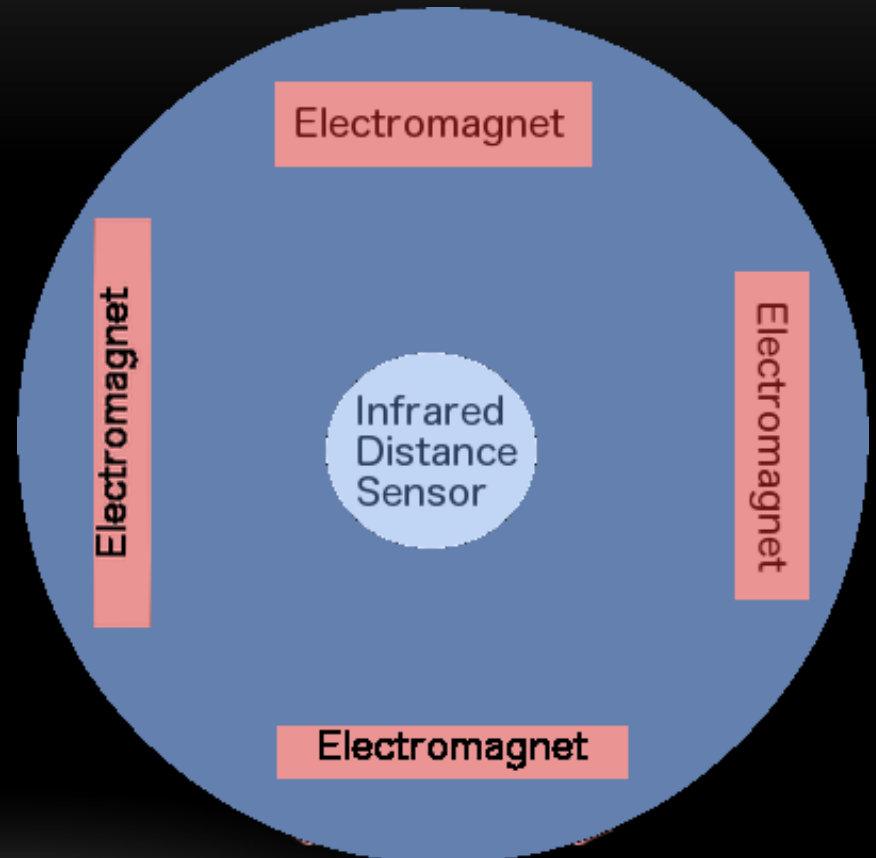


PLANT: THE TABLE ITSELF



TOP VIEW

BASE

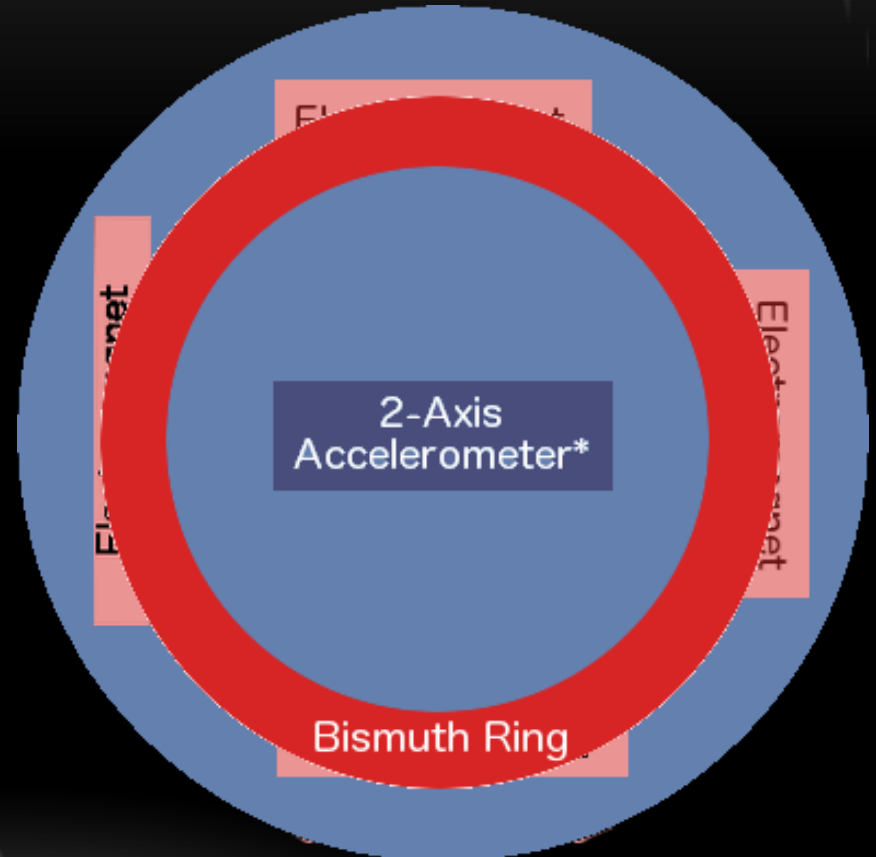


PLANT: THE TABLE ITSELF

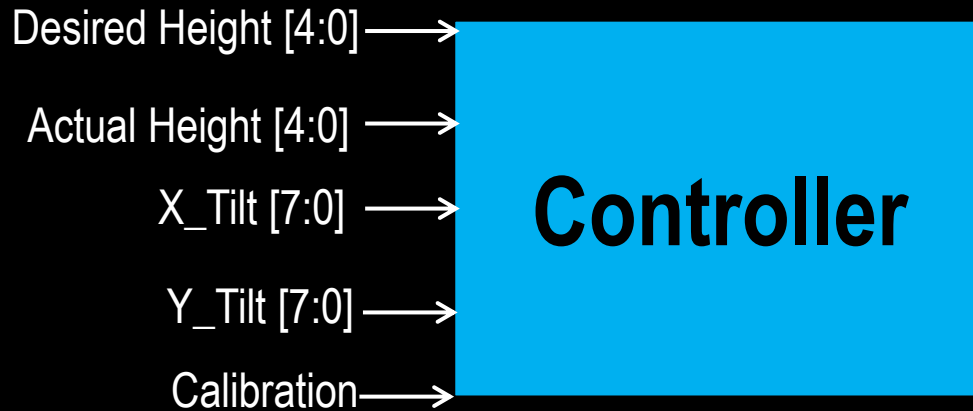


TOP VIEW

TABLETOP

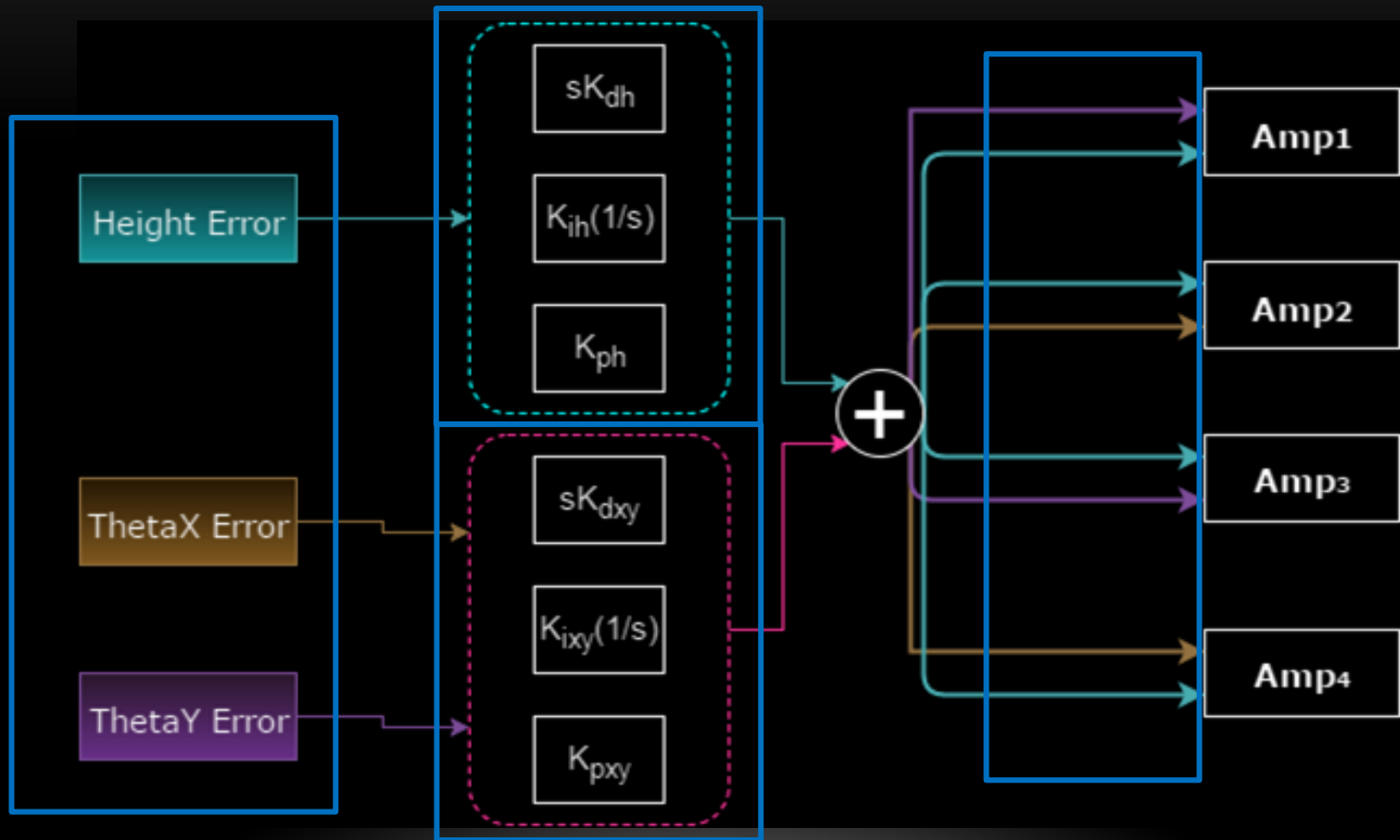


INPUTS

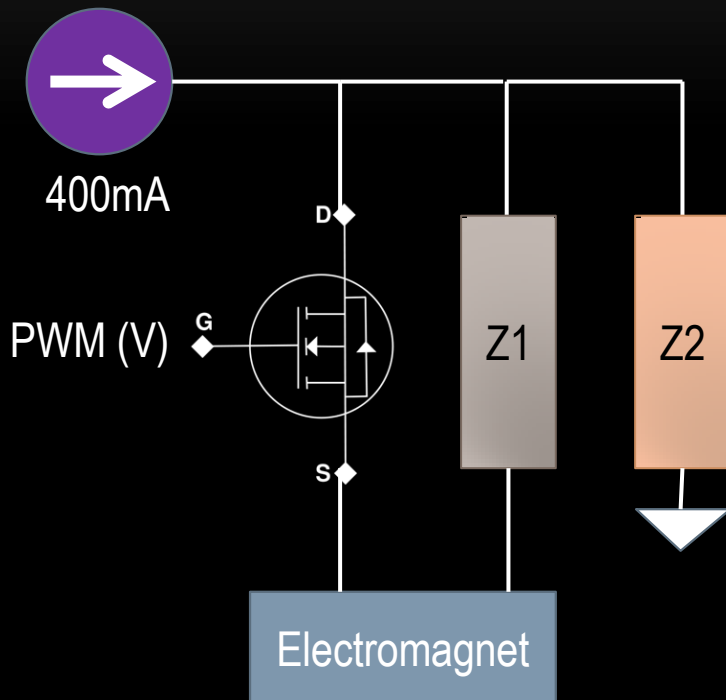


- Desired Height is set by the user with switch 4 through 0
- Actual Height, X_Tilt, and Y_Tilt are read by the sensors
- Calibration allows you to edit the default values

PID CONTROLLER



PWM TRANSMITTER

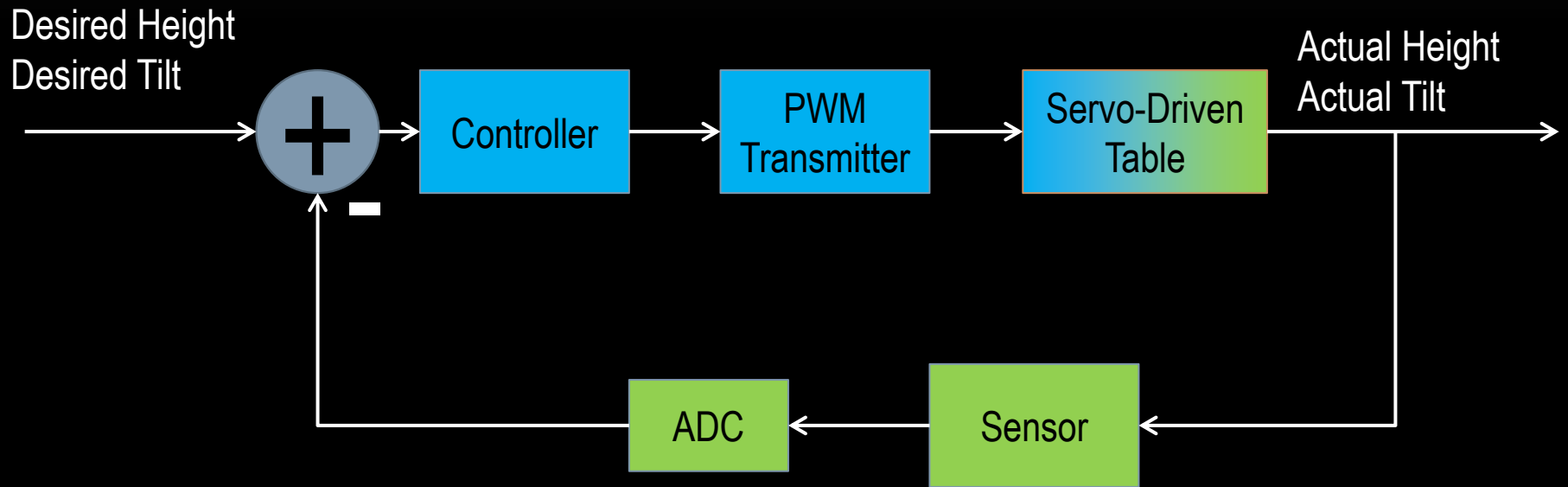


- Receives a voltage PWM wave and converts it into current.
- Controlled the output force of electromagnet

CONTINGENCY: SERVO BASE

- Replace the magnetic base with a servo one where servos hold the table at some desired height
 - Servos still use a PWM input so overall design change is minimum
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CONTINGENCY SERVO BLOCK DIAGRAM



GOALS FOR THE PROJECT

- Goal 1: Have a Table float and maintain a height given weight and disturbances
 - Goal 2: Have the table be height adjustable by the user
 - Goal 3: Add accelerometer to have table adjustable
 - Stretch Goal: Add a display that will allow you control the height and tilt.
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TIMELINE

	11/2-11/8	11/9 – 11/15	11/16-11/22	11/23-11/29	11/30-12/6
Order Magnets, Bismuth, and Sensors	Active	None	None	None	None
Build Spice of PWM Transmitter	Active	None	None	None	None
Build Table and Test Transmitter	None	Active	None	None	None
Test Sensors, Magnets, and build ADC	None	Active	Active	None	None
Build and Test Controller	None	None	Active	Active	None
Debug System	None	None	None	Active	Active

QUESTIONS, COMMENTS, AND CONCERNS

SOURCES

- <http://www.crealev.com/wp-content/uploads/2014/04/2014-06-03-11.06.24.jpg>