**UNIVERSAL DATA TYPES**

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| **Syntax** | typedef struct sensor |
| **Purpose** | a data type that holds all information of a sensor |
| **Data Members** | * portMain - the sensor’s main sensor port * portSub1 - the sensor’s first supporting sensor port * portSub2 - the sensor’s second supporting sensor port * type - the type of sensor |

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| **Syntax** | typedef struct sensorArray |
| **Purpose** | a data type that holds all the information for an array of sensors |
| **Data Members** | * sensors[20] - an array of sensors. The max number of sensor ports on the platform being used is 20. * sensorAmt - the amount of sensors in the sensor array |

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| **Syntax** | typedef struct motorSystem |
| **Purpose** | a data type that holds the information of an array of motors |
| **Data Members** | * motors[10] - an array of motors. The max number of motor ports on the platform being used is 10. * motorAmt - the amount of motors in the motor array |

**UNIVERSAL VARIABLES AND CONSTANTS**

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| **Syntax** | motorSystem righDrive |
| **Purpose** | an array of motors designated for the right drive |

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| **Syntax** | motorSystem leftDrive |
| **Purpose** | an array of motors designated for the left drive |

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| **Syntax** | motorSystem straffDrive |
| **Purpose** | an array of motors designated for the straff drive |

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| **Syntax** | motorSystem liftSystem |
| **Purpose** | an array of motors designated for the lift system |

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| **Syntax** | motorSystem intakeSystem |
| **Purpose** | an array of motors designated for the intake system |

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| **Syntax** | sensor rightDriveSensor |
| **Purpose** | a sensor designated for the right drive |

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| **Syntax** | sensor leftDriveSensor |
| **Purpose** | a sensor designated for the left drive |

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| **Syntax** | sensor straffDriveSensor |
| **Purpose** | a sensor designated for the straff drive |

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| **Syntax** | sensor turnSensor |
| **Purpose** | a sensor designated for turning. Sensor type must be gyro. |

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| **Syntax** | const int NONE = -1 |
| **Purpose** | a constant to show nothing is assigned to a variable |

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| **Syntax** | const int leftButton = 1 |
| **Purpose** | a constant representing the left lcd button |

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| **Syntax** | const int centerButton = 2 |
| **Purpose** | a constant representing the center lcd button |

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| --- | --- |
| **Syntax** | const int rightButton = 4 |
| **Purpose** | a constant representing the right lcd button |

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| **Syntax** | const int MAIN = 0 |
| **Purpose** | a constant representing the main controller |

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| **Syntax** | const int PARTNER = 1; |
| **Purpose** | a constant representing the partner controller |

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| **Syntax** | const int RED = 0 |
| **Purpose** | a constant representing the red alliance |

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| --- | --- |
| **Syntax** | const int BLUE = 1 |
| **Purpose** | a constant representing the blue alliance |

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| --- | --- |
| **Syntax** | int alliance |
| **Purpose** | a variable representing the current alliance |

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| **Syntax** | string position1 |
| **Purpose** | a variable representing a starting position |

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| **Syntax** | string position2 |
| **Purpose** | a variable representing a starting position |

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| **Syntax** | string startingTile |
| **Purpose** | a variable representing the current starting position |

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| --- | --- |
| **Syntax** | const int X\_DRIVE = 0 |
| **Purpose** | a constant representing an x-drive |

|  |  |
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| **Syntax** | const int H\_DRIVE = 1 |
| **Purpose** | a constant representing an h-drive |

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| **Syntax** | const int TANK\_DRIVE = 2 |
| **Purpose** | a constant representing a tank drive |

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| **Syntax** | int driveType |
| **Purpose** | a variable representing the current drive type |

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| **Syntax** | float xDriveMotorTrim |
| **Purpose** | a variable representint the x-drive motor trim. Used for having the robot rotate and move at the same time. |

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| **Syntax** | float liftMotorTrim |
| **Purpose** | a variable representing the lift motor trim. Used to make the lift less bouncy in movement. |

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| **Syntax** | float driveMotorTrim |
| **Purpose** | a variable representing the drive motor trim. Used only in autonomous to slow the robot as it reaches its target position. |

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| **Syntax** | float turnMotorTrim |
| **Purpose** | a variable representing the turn motor trim. Used only in autonomous to slow the robot as it reaches a target bearing. |