Electronics
Project Information

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Outline

Outline

- robot;

Outline

- robot;
- courses(2)

Outline

- robot;
- courses(2)
- start with flashlight

Outline

- robot;
- courses(2)
- start with flashlight
- straight line; along wall;

Outline

- robot;
- courses(2)
- start with flashlight
- straight line; along wall;

  stop with front less than 1m from wall without hitting

Outline

- robot;
- courses(2)
- start with flashlight
- straight line; along wall;

  stop with front less than 1m from wall without hitting
- around back island ccw

Schedule

Schedule

- Nov. 7; block diagram and schedule

Schedule

- Nov. 7; block diagram and schedule (due Friday morning)

Schedule

- Nov. 7; block diagram and schedule (due Friday morning)
- Nov. 14; demonstrate one sub-task

Schedule

- Nov. 7; block diagram and schedule
  (due Friday morning)
- Nov. 14; demonstrate one sub-task
- Nov. 21; demonstrate two sub-tasks combined

Schedule

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  (due Friday morning)
- Nov. 14; demonstrate one sub-task
- Nov. 21; demonstrate two sub-tasks combined
- Nov. 28; demos

Schedule

- Nov. 7; block diagram and schedule
  (due Friday morning)
- Nov. 14; demonstrate one sub-task
- Nov. 21; demonstrate two sub-tasks combined
- Nov. 28; demos
- Dec. 1; documentation due.

Subtask marks

Subtask marks

If you have parts of the project ready early, you can demonstrate them to reduce weight on final demo.

- With bock diagram and schedule

Subtask marks

If you have parts of the project ready early, you can demonstrate them to reduce weight on final demo.

- With bock diagram and schedule

  20% per task

Subtask marks

If you have parts of the project ready early, you can demonstrate them to reduce weight on final demo.

- With bock diagram and schedule

  20% per task

  20% additional if two or more tasks

Subtask marks

If you have parts of the project ready early, you can demonstrate them to reduce weight on final demo.

- With bock diagram and schedule

  20% per task

  20% additional if two or more tasks
- After one week

Subtask marks

If you have parts of the project ready early, you can demonstrate them to reduce weight on final demo.

- With bock diagram and schedule

  20% per task

  20% additional if two or more tasks
- After one week

  15% per task

Subtask marks

If you have parts of the project ready early, you can demonstrate them to reduce weight on final demo.

- With bock diagram and schedule

  20% per task

  20% additional if two or more tasks

- After one week

  15% per task

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Subtask marks

If you have parts of the project ready early, you can demonstrate them to reduce weight on final demo.

- With bock diagram and schedule

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  20% additional if two or more tasks
- After one week

  15% per task

  15% additional if two or more tasks
- After two weeks

Subtask marks

If you have parts of the project ready early, you can demonstrate them to reduce weight on final demo.

- With bock diagram and schedule

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- After one week

  15% per task

  15% additional if two or more tasks
- After two weeks

  10% per task

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  15% per task

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- After two weeks

  10% per task

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- After one week

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  10% per task

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Hints

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- How to start with light?

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- How to control motors?

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- Motor control options: (untested)

Hints

- Block diagram;
- How to start with light?
- How to control motors?
- How to determine if straight?
- How to determine when to stop?
- Motor control options: (untested)
- 1 fixed speed; other can go faster or slower

Alternative: Virtualized Robot

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Using LTspice, create and test models for

- DC motor;

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Using LTspice, create and test models for

- DC motor;
- Photodiode;

Alternative: Virtualized Robot

Using LTspice, create and test models for

- DC motor;
- Photodiode;
- Relay;

Alternative: Virtualized Robot

Using LTspice, create and test models for

- DC motor;
- Photodiode;
- Relay;
- Infrared sensor

Alternative: Virtualized Robot

Using LTspice, create and test models for

- DC motor;
- Photodiode;
- Relay;
- Infrared sensor

The goal is to make it possible for students to calibrate the models using their own data and to test their control circuitry in LTspice before building it.