PDR
Websites

Engineering Notebook
Following instructions
Design Review 1

Team Slugo de Golfo
Josh Passmore, Joshua Pena, Julia Warner
Break down task

- Load the balls
- Score the goals
- A smooth and consistent transition between the two
Primary Design

- Raw wheel drive
- Stop check on front to prevent bouncing
- 3 tooth "gear" ball bearings/leader
- 3 levels
- 2 bumpers/motor to the rails to "switch" bumper
- Two DC motors for wheels, stepper for "gear"
- 2 sensors on front to provide slight forward lift
- 3 tape sensors front, 1 tape sensor back
- 2 touchwire sensors
- 1 beacon sensor
- Brush for player pens

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Josh Passmore, Joshua Pena, Julia Warner
Secondary Design

- Rear wheel drive
- Chain work to funnel to prevent bouncing → funnel @ 11°
- MSP construction, square pyramid
- Blankhull organizer/depenser
- Y levels
- Wheel bumpers
- Two DC motors for wheels
- Two omnidirectional wheels for maneuvering → could be interchanged w/ caster
- 2 type sensors, front, back
- 2 touchwire sensors
- 1 bumper sensor
- Brush for plunger press
- Threaded rods for variable height

- Better CG than previous design
- Preplaced for release to goal
- Variable platform design can shift as needed
- Support strut for bell dispenser
- Brush for dispensing plunger (1) less need for accuracy

Rear wheel drive,
1x B-bridge head (centered),
2x DC motors

Ramp sensors (x2)
Variable height adjustment using:
- Wheel rods
- T-shaped sensors
- Touchwire sensor: "s" wheel mount

Access to I/O pins

Josh Passmore, Joshua Pena, Julia Warner
Teams project

Carl Eadler
Aaron Lauro
Elmer Orellana

people.ucsc.edu/~ceadler/mechatronics
The Jawas

Aidan Forrest
Brandon Lake
Chris Villalpando
The Sandcrawler

Beacon Sensor

Plunger pusher

Bumper

Sensor

Servo

Track wire sensor

H bridge

UNO R32

Ground

11 in

0.75 in

1 in

3.5 in

43 mm
Things we'll need:

2 dc motors
2 servos
5 tape sensors
2 track wire detectors
4 bump sensors
Things we'll need:
2 dc motors
1 solenoid
5 tape sensors
2 track wire detectors
5 bump sensors
SLUG BOT
Mechanical Design
SLUG BOT
Mechanical Design

- Brushless DC Motors x2
- Servo x1
- Track Wire Sensors x2
- Tape Sensor x3
- IR Beacon Detector x1
- Trip Sensor x1
- Switch Bumper x2
- Funnel x1
- PVC pipe x1
Top View of Primary Design
"Chubb's Right Hand"

(Ball Dropper Design)

Side View
Backup Design
Ball Launcher Mechanism (A)

- Funnel
- PVC Pipe
- Solenoid
- Pull Type Solenoid (Hatch)

Considered putting it here too
Design B

Bottom Platform Underside View

Tape Sensors

Wire Hole

Battery

 Skeg
Tiger MDF’s

Anthony Chong
Garrett Stoll
Aaron Ramirez
1st Design

- Ball funnel
- Plunger Rack
- Ping Sensor
Launcher Mechanism

Ball Dispenser

Stepper Motor

90° Increments

Hole to Ramp

From funnel

Ramp
Ping Pong Loader Release

Depressed Plunger

Extended Plunger
2nd Design

Locomotion:
Rear Drive:

- Ping pong ball reservoir

Plunger arm

Skid

Static Components
- Reservoir
- Plunger Arm
- Skid base
- Ping Pong tube

Sensors:
Launching Mechanism
Final Project Ideas

Group: Justin Lee
Niraj Raniga
Jason Vance
Isometric View

Motor Mount
Ball Collection

Collector

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Ball Release
Sensor Location

Top View:
- Switch
- 2nd level

Bottom View:
- Front
- Bottom
- Back

Symbols:
- © = tape sensor
- © = track wire
Primary Design (Jigglyputt)

For this design we will use the symmetrical shape to help us with our positioning and rotation. The red circles are our track wire sensors, and the four black circles are our tape sensors. The two solenoids on the top are for stopping and releasing the ping pong balls down our funnel. The height of the bottom platform and the location of the skids are designed to keep Jigglyputt from falling.
Secondary Design (Choo Choo Shoot You)

This design focuses on shooting the projectiles from a distance rather than navigating the course (Happy Gilmore style). Once the beacon is detected, the bot will shoot the two balls from its current location before searching for the next beacon.
CMPE – 118
SLUG-O-LYPICS

Lab Fore!

Michael Bissani  Joseph Carlos  Denzel Mapp
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Final Bot Design
Preliminary Stage

Team WALL-Eagle
This is our beacon detector. It is on a 3" radius disk which rotates. There is a slipring which prevents wire entanglement and allows room for wire management. The entire setup is attached to a smaller disk which is attached to a stepper motor.
Ball launcher/collector Concept

1.7" clearance

Beacon Detector Tower

Servomotor (gate)

This ball collector works by minimizing moving parts. It will be made out of PVC pipe. The top part is angled as a ping pong ball collector. The bottom pipe is a servomotor controlled "gate" to allow for ball "launching".
Item Description:
A: Beacon Mount
B: Loader - Elevation Mechanism - Foam
C: Ram Mount
D: Spring Box
E: Wheel

Layer 1:
- $d > 1.5714 \pi (\text{propping})$
- Material

Layer 2:
- Material

Layer 3:
- Material

Details: Loader
- Ball will only drop when bot rotates backward, once it reaches beacon hole.
Details - Loading Mechanism

- DC Motor
- Gear to increase torque enough to force spring

- Activation of solenoid releases arm.
- Then, motor returns spring to loaded position

Details - Tape Detector Configuration

- Tape edge left
- Tape edge right
- 1.5" distance
- 2" length
Hole in UNO

Vishnu Surya, Jamie Dieckman, Leya Baltaxe-Admony

mechatronicsFall2016.wordpress.com
Design 1
Ball Dispensing

Top view of funnel level

Side view of top two levels
Design 2

- Bottom plate
- Second plate
- Top square ball collector
- Top view

Dimensions:
- Height: 4.5 in
- Width: 5 in
Collector

Funnel
Delivery

- launcher
- fast
- inconsistent

expanding arm

Just bring it

floor bumper + Dropper
Avoiding the Tower

If the targets are the only source of 2kHz noise

CW Trace

CCW Trace
Platform

Front

Back

Horizontal Parts: Solid
More Material (less holes)

Vertical Parts: Frame
Less Material (more holes)

Ball Bearing
Modules

Need: Loading Mechanism, Tower Probe, Launcher, Movement, Controllers

Tape Sensor approach:
- Independent stick legs
  + Less Material
  - Fragile
- Secondary platform
  + Sturdy
  - More Weight

Tape Sensors
Filler
Under Carriage
- LED/Tape/Beacon
- Modules (Chips) ?
- Launcher/Delivery x
- Other Sensors (Ultra sonic, Whisker bumpers) ?

Figure Out the Gyro to get precision turns

Over Carriage
- Tower Delivery
- Tower
Obstacle Avoidance

Back Bumpers are probably unneeded

Consider:
- Circuitry
- Arena Layout

Two-hole Track Wire
Not to scale
Who’s your Caddy
Team: Erik Jung, Christopher Espino, Miguel Flores

LOADING/SHOOTING MECHANISM DESIGN

MAIN ITEMS TO PURCHASE:
- 2 DC Motors
- Servo Motor
- PVC piping
- Micro Switches
- Possibly Omniwheels for skids?
- Screws/Rods/Perf boards/IC’s

Gabriel Hugh Elkaim
CMPE 118/218 – Intro. to Mechatronics
Team: Erik Jung, Christopher Espino, Miguel Flores
Team: Party of Fore

Members: Sabrina, Perla, Kurt, Michael
Team Name:
Sterling Dreyer & Roger Berman & Abhiram Venkatesha
Team: Octoputt

Vanessa Hovanessian, Alex Martin-Ginnold, Victoria Ly
Right Side View

Ball Loader / Dropping Mechanism

Max speed 6 in/s

https://sites.google.com/a/ucsc.edu/team-octoputt/
Condor
Emily Enlow, David Chalco, Yu-hsiang Lo

Website
link: https://people.ucsc.edu/~dchalc/o/designs.html
Patrat Caddy-stack

Brian Metz
Yusuke Kojitani
Kerim Hurd-Korkmaz
http://prcs-cmpe118.weebly.com
Design 1: Drawbridge (Perspective)
Design 1: Drawbridge (Hopper)
Design 2: Special Delivery (Perspective)
Design 2: Special Delivery (Hopper)

90° Servo turn releases 1st chamber
180° Servo turn releases both chambers
Shared

- Metal Slug
- Ghetto Electromagnet
- Point of pivot
Shared

Anchor Points

Fun w/ 3D Printing

Hinge
Design 3:
Top, Bottom, 3D
Design 3: Ball Loader, Ball Release, Plunger
Team: Octoputt

Veronica Hovanessian, Alex Martin-Ginnold, Victoria Ly
Right Side View

Ball Loader / Dropping Mechanism

Sensor

3 in

2~3 in

9 in

Max speed 6in/s

Ball Dropper Tracks

https://sites.google.com/a/ucsc.edu/team-octoputt/
Drag the cursor around the area you want to capture.