Team Introduction

Project Name: **EmotoBot**

Team Members and Roles:

- **Frank Mascarich**, 1st Year PhD Student, University of Nevada, Reno : Emotion Recognition and System Integration
- **Minghan Wei**, 1st Year PhD Student, University of Minnesota; Ollobot motion control
- **Blake Hament**, 2nd Year Masters Student, University of Nevada, Las Vegas: Emotion Recognition, Interface Architecture, Business Plan

Problem Statement

Scenario: A visitor to an integrated resort is dissatisfied and needs some type of service.

Problem: The longer it takes to engage the dissatisfied visitor, the less the visitor will be inclined to procure resort services in the short-term and long-term future.

Current Solution: Resorts employ humans to scan for dissatisfied visitors and meet their needs.

Pain Point: Human laborers are expensive, unreliable, and inconsistent-- often taking social breaks or failing to be proactive about dissatisfied visitors.

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Our Solution:
1. EmotoBot **moves** through an area in the resort and **scans** for dissatisfied visitors
2. Upon detection:
   a. EmotoBot **sends** the picture and location of visitor to staff for monitoring/follow up
   b. EmotoBot engages visitor in the following ways:
      i. **Acknowledges** visitor dissatisfaction and communicates resort's desire to rectify the situation
      ii. **Identifies** desired service or other cause of dissatisfaction through dialogue or graphical interface with visitor
      iii. **Instructs** visitor on how to procure necessary service or resolve other cause of dissatisfaction
      iv. **Gives** visitor coupon or comp

Solution

The EmotoBot!
- Autonomous robot who seeks out unhappy integrated resort visitors
- Relays the visitor's appearance, complaint, and location to management
- Interacts with the visitor to improve their experience and log their complaint

↑Resort Revenues
- ○ Improves visitor satisfaction and retention
- ○ Increases time visitors are engaged with resort services
- ○ Strategic coupons reverse negative visitor experiences and further stimulate visitor purchases

↓Resort Costs
- ○ Human laborer: $30K/y   VS.   Emotobot: $10K/5y = $2K/y
- ○ Unreliable, inconsistent   Reliable, consistent
- ○ Not proactive   Thorough

How the EmotoBot is a consumer robot:
1. Perception - Ability to avoid obstacles and seek targets
2. Cognition - Ability to detect "Unhappiness"
3. Action - Ability to interact with humans in its environment to improve visitor satisfaction, retention, and engagement

Demo

- Robot wanders through the lobby
- Once EmotoBot finds an unhappy visitor, it sends the management an email containing a picture of the visitor

Future Development:
- Automated visitor interaction
  - Voice interface
  - Touch interface
- Intelligent "wandering"
- Improved collision avoidance
- Visitor complaint resolution and "comp" abilities

Demo

Happy Visitor

{u'sadness': 5.08748859e-14,
u'neutral': 1.47774792e-10,
u'contempt': 5.67633223e-12,
u'disgust': 5.894981e-12,
u'anger': 6.842055e-12,
u'surprise': 1.46460752e-06,
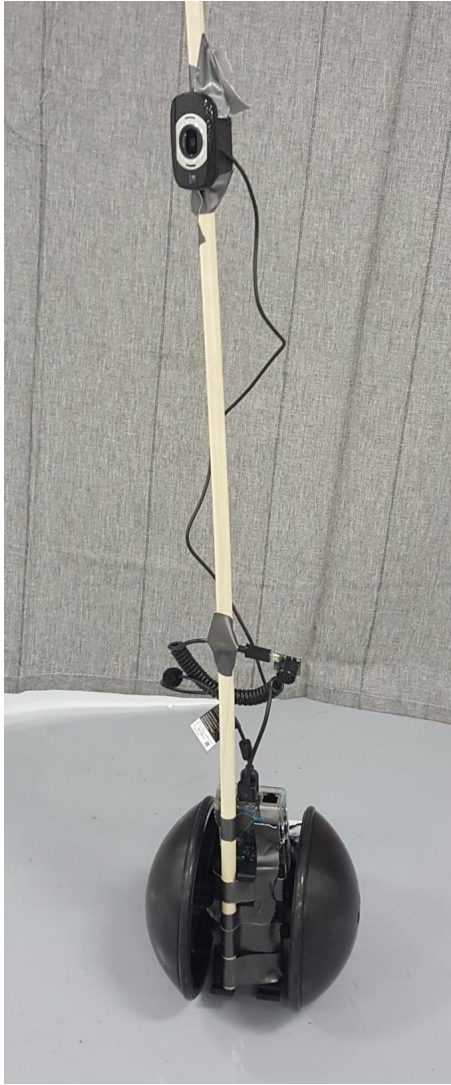u'fear': 5.020003e-11,
u'**happiness**': **0.9999985**}

Angry Visitor

{u'sadness': 0.00544529036,
u'neutral': 0.259972,
u'contempt': 0.0103945071,
u'disgust': 0.303311735,
u'**anger**': **0.42004016**,
u'surprise': 0.00078437425,
u'fear': 3.45622e-05,
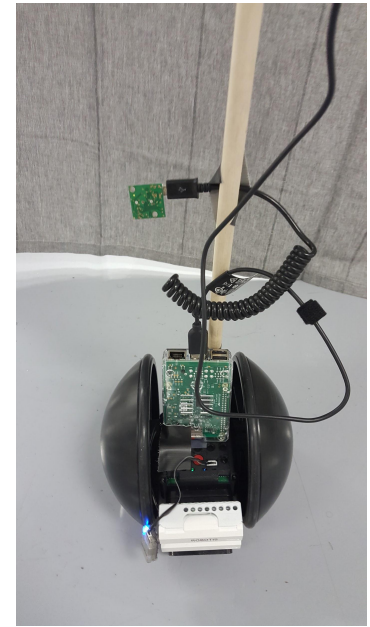u'happiness': 1.73857625e-05}
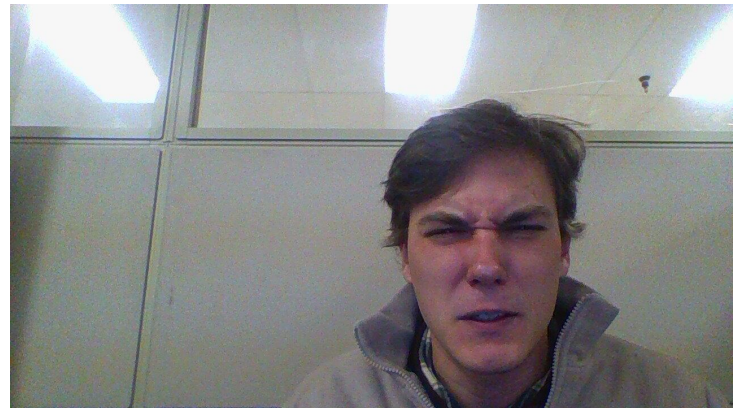
Demo

Front Full:

Front Top:

Rear Bottom:

Logitech webcam

rangefinder

Raspberry Pi 3

Ollobot wheels

Business Model

Emotobot is an innovative product that provides two benefits to visitors:
1. Provides low cost interface for complaint logging
2. Increases our visitors' visitor retention, satisfaction, and engagement which translates directly to more revenue for the resort

Resorts will be extremely satisfied to pay **$20K** for an **EmotoBot** that will last 5+ years, saving operators ~$25K per laborer annually

Our Projections:

Year 1

Startup Cost: $215K

Break-Even: 11 units sold

Year 2

Profit: +1M with 100 units sold at 50% net profit

Startup Cost Projections

Total Cost: $215K

- Materials: **$25K**
  - Enough to produce ~ 100 units
- Marketing: **$20K**
  - Promotional Video
  - Live Exhibitions
- Insurance, Permits, and Licensing Fees: **$10K**
- Legal, Accounting, and Tax: **$10K**
- Founders Salary: $50K x 3 = **$150K**
  - Responsibilities:
    - Design, prototyping, testing
    - Project, production, and company management
    - Business strategy, planning, and execution

Execution Plan

Plan and Timelines

- Stage 1: R&D, Marketing (6 months)
    - Founders continue testing and prototyping
    - Partner with resort for case study, promote results via:
        - Promotional Video
        - Live Exhibitions
        - Published studies
- Stage 2: Production, Customer Support (6 months)
    - Source materials
    - Manufacture and ship
    - Monitor and support fleet
- Stage 3: Growth
    - Identify and pursue attractive new market segments
    - Expand workforce and production capacity
    - Iterate to improve product performance
    - Develop new products

Summary and Thank You

- Particular Winter School talks and workshops used
    1. Relay improves visitors' experience in the hotel.
    2. Hospitality pain points discussion.
    3. Ollobot and Realsense workshops.

- Information and/or inspiration from CES
    1. Smart home ⟶ Smart hotel

- Non-Workshop tools
    1. Opencv - image capture
    2. Microsoft Emotion API - emotion recognition
    3. Raspberry Pi - main processing
    4. BlueZ - bluetooth communication
    5. Python - extreme rapid development

Appendix

Cost per unit: $225

- -RP3: $35
- -Webcam: $20
- -Ollobot: $100
- -Frame: $20
- -Labor Costs: $50