Goals

* attract people in technical side + parents, kids
* finish by beginning of March for room before competition
* try to make space-themed to go with competition
* make content and setup technology

Content

* **TV** (HiSense 32H3B1)
  + figure out orientation issues
  + [quick setup](https://www.hisense-usa.com/sites/default/files/support-doc/32H3B1%20QSG-English.pdf), [user manual](https://www.hisense-usa.com/sites/default/files/support-doc/32H3B1%20User%20Manual-English.pdf)
* **videos** ([YouTube](https://www.youtube.com/channel/UC7dOr4w6lgwTMcm1bvaZJzA))
  + robot + competition
  + possibly music videos
  + certain mechanisms
  + demo of CV
  + show off game + display location at competition
* **some kind of informational slideshow**
  + pictures
  + information about the team (or club overall)
  + show off all the different subteams (including project teams)
* **pictures** ([Flickr](https://www.flickr.com/photos/chsr/albums))
  + CAD
  + current robot + past ones
  + competitions
  + maybe some meetings
* ~~TouchJet Wave - interactive, almost like touch screen~~
  + [user manual + information](https://support.touchjet.com/hc/en-us/articles/218054423-Touchjet-WAVE-User-Manual), [setup](https://support.touchjet.com/hc/en-us/articles/115005920303-Connecting-the-WAVE-to-the-Touchjet-App-for-initial-set-up)
  + possibly can use with some kind of menu
  + can download apps
    - slideshow → Pixgram
  + maybe can contact Deep for more information
* maybe depth camera?
  + some kind of image recognition
  + check if there’s a person (to become active) or detect certain hand gestures
* Maybe a website with a menu to access all the other info
* **can use Raspberry Pi + Arduino**
  + write software for the interactive stuff
  + **buttons on the side, press to do stuff**
    - other way of being interactive, if TouchJet or depth camera doesn’t work out
    - choose options
  + python, Tkinter



Buttons:

* apollo mission video
* about the team
* About the robot
  + Animation, person talking/explaining (video), or list of information
  + model
* matches
* different demos (cv, games)
  + videos

Non-TV things

* Dusty robot
  + interactive in some way (“talk”)
* other “decorations” to spruce up the front

Required: setup of TV, slideshow of information, videos, pictures

Next Steps: setup of speakers, Raspberry Pi + Arduino, interactive (button, TouchJet Wave)

Reach: depth camera

People to Contact

* CV for CV demo
* Game for game demo or setup
* PR for videos, pictures, existing informational slides
* project teams for possible things to show off

Possible Setup

* possibly go through pictures/videos while inactive
* when active / person actually in front of TV, become interactive and choose specific thing and do things
  + some kind of menu

Information about the Team:

* founded in 2007 by 7 people, grown to over 70 people
* divided into different subteams
* hardware:
  + uses computer aided design (CAD)to plan spacing and ensure accuracy/precision in manufacturing
  + students use machinery and stuff
  + subteams: chassis, backup mech, reach mech,
* software:
  + use github and slack
  + subteams: cv, drive, robot code
* other projects: pit setup/design, pit tv display, video game

2473 was founded in 2007 by just 7 students with the desire to learn how to build a robot. Today, the team has grown to over 70 students divided into several sub-teams that work together, constructing a complex robot by the end of each season.

The subteams include pit design and setup, which is responsible for the assembly of the pit, chassis, which should enable robot mobility on the game field, backup mechanism, which creates a simple mechanism for the drive team to test, reach mechanism, which should fulfill one primary game objective, pit TV display, which should provide an attractive and interactive display for the pit, video game, which creates a playable video game version of the challenge this year, robot code, which enables essential robot functionality, computer vision, which uses networking between the NVIDIA Jetson platform and RoboRIO to develop advanced autonomous features, drive, which utilizes the robot’s capabilities during the competition.

Building off of the 2018 season, this team looks to take the next step in becoming a cohesive group of individuals competing in robotics. The challenge this year is called DESTINATION: DEEP SPACE and is detailed below.

The objective of this year’s challenge, DESTINATION: DEEP SPACE, is to deploy a robot from a station called habitat, attach hatch panels to hatches on the rockets and the cargo ship, and add cargo through the hatches into the rockets and the cargo ship. The competition also has an autonomous and manual period. During the autonomous period, our robot can dismount from stage 2, among the 3 stages, 1 being the lowest and 3 being to highest. The robot is also driver-operated using a camera on the robot. The robot can intake cargo from the ground and the player station as well using an arm mechanism, score hatch panels on the hatches, and cargo on the cargo ship and all levels of the rocket using an elevator mechanism. When the game is over, and the robot is to return to the habitat, it can climb onto stage 1.

The hardware teams collaborate using Computer Aided Design (CAD) for planning the spacing distributions on the robot and ensures both accuracy and precision in the manufacturing of parts. The students operate machinery provided by the facilities at Cupertino High School to build their projects, and after an intense prototyping process under a strict schedule, high quality hardware is produced.

The software team cohesively works as a unit to bring this hardware to life. Collaborating using technologies for version control such as Github and communication such as Slack, teams are able to work in an efficient manner. The 2473 software team endeavors in areas such as computer vision, networking, usage of the WPI library, implementing sensors, and other special projects in order to make the most out of the fine product produced by the hardware team.

Assisting with this process are our amazing mentors. With 10 mentors total for both the hardware and software subteams, they provide their time, knowledge, and expertise to guide students in the right direction. Students are able to remain productive while also learning immensely under the selfless mentors, who donate several hours every week to working with us.

About the Robot info:

* Requirements of the game
* Deploying ROBOTS from Habitat (HAB)
* Preparing ROCKETS and CARGO SHIP with HATCH PANELS
* Loading CARGO pods into their ROCKETS and CARGO SHIP
* Returning the ROBOT safely to the ALLIANCE’s HAB
* Other details
* Rocket has 3 hatches on the front, right and left (9 hatches)
* Cargo ship has 8 hatches on the front, right and left
* HAB platform has 3 levels (the higher the level, the higher the platform)
* Cargo is a orange ball which can be thrown in through the hatches
* Hatch panels cover hatches (prevents cargo from rolling out)
* What does our robot do?
* Sandstorm
  + Can dismount from stage 2
  + Driver-operated using camera
* Game Piece Manipulation
  + Can intake cargo from the ground and from the player station
  + Can score hatch panels and cargo in cargo ship and all locations on rocket
* Endgame
  + Climb to stage 1

Elevator Specs

Double-stage cascade elevator

V-bearings and 1” REV extrusion

Powered by one NEO brushless motor in a WormBox with additional ~2:1 reduction