

BU ENG ME 691

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Team: Toddler Camera

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Brief: To design a camera intended for ages 18 months - 4 years. Emphasis is on ease of use, durability, intuitive interface, minimal feature set, and refined design. Comparison products are the Kidamento Model-C camera and the Yoto Mini music player.

Electrical Functionality:

Must-Haves

- Digital screen, NOT touch screen, must be HIGHLY durable
  - Approx 2.5" square? May be a bit larger or smaller
  - Will show real-time feed of camera or gallery of images while not asleep/off
- Forward facing camera
- Selfie camera
- Some combination of physical buttons, dials, switches as UI
- Rechargeable battery
  - could be wireless, but looking at USB-C
  - Desire ~6hr battery life on full charge while new
    - What are common degradation levels over time?

Might-haves

- Video capture (through fwd & selfie cameras)
- Speaker
- Microphone
- NFC card reader
- Wifi connection

System Characteristics

- Must pass child toy safety ASTM F963 specs. No small parts can break off after drops, compression, tension, torsion, bites. Preferably the whole thing continues to work fully after such rough usage as well.
  - How to shock mount / impact-resist electronics?
- How to avoid cracking the screen?
- Aiming for IP-54, must survive rough use, outdoor use, splashes, not expected to survive submerged
- Aiming for 2-3 year lifespan
  - Estimated 100k cycles for buttons? (100 presses/day for 6 day/wk for 3 years with some safety margin).
- The weight of the product shall not be more than 0.5lbs with a target of 0.25lbs.