

# M.E.D.K.I.T

Medical and Embedded Device Konfiguration and Integration Technology

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Team

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**Conál:** Software, Systems-level Design, Documentation

**please add what you guys did after the colon and it will show in the presentation**

**Jaime:**

**Vagos:**

# PROBLEM: HEALTHCARE IS EXPENSIVE<sup>1</sup>

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<sup>1</sup>for Americans.

## Medical Debt

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- pervasive in America, and life-altering for many

| Amount    | # of people |
|-----------|-------------|
| Some      | 20 million  |
| >\$1,000  | 14 million  |
| >\$10,000 | 3 million   |

- Negatively influences availability of treatment options to patients.
- Most Americans have three choices:
  1. Be born into enough wealth to never worry about it
  2. Have employer-based coverage
  3. Take on massive amounts of risky debt to cover treatments
- What happens when you run out of money (and your car, house, etc)?

## Case Study: Insulin Pumps

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- Up-front ~\$6000 cost (plus additional subscriptions, etc)
- Cost manipulation of Insulin
- Only Real Alternative: **Cost Related Nonadherence**
  - paradoxically, more expensive
  - often kills you<sup>2</sup>

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<sup>2</sup>After taking your vision, mobility, and your limbs once they get amputated.

**SOLUTION: OPEN SOURCE BIOTECH?**

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## **Advantages**

- Much cheaper
- Shares information, paves the way for future work
- Decentralized development allows diverse forks and features

## **Disadvantages**

- Harder to get standardization without the backing of Capital
- Capital is disincentivized to engage or support projects due it helping people that may not directly give you money.

## Ultra-Low-Cost Insulin Pump

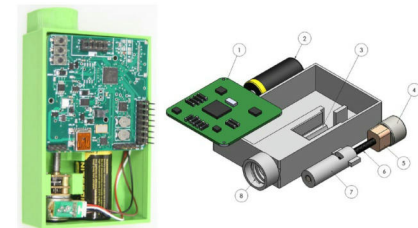
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### Pros

- \$87 is a lot lower than \$6000
- High-Quality
  - Competitive (and sometimes superior) bench-side delivery accuracy.

### Cons

- It doesn't work with my \$700 Glucose Monitor!





# INTEGRATION

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## Why?

- Control Systems!
  - having diabetes is a full-time (reverse-finnanced) job!

## How?

- Communication between medical devices according to a shared communication policy.

## But...

- Existing or non-compliant devices are inaccessible
- Future designs would like to have things to connect to
  - MAJOR barrier to adoption

**SOLUTION: M.E.D.K.I.T!**

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