Traumatic Brain Injury
Reducing Army Combat Helmet

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Outline

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Background

- Former U.S. Army soldier, now a UConn nursing student, suggested improvements to combat helmets after serving in Iraq.
- Current helmets provide ballistic protection, but limited head trauma protection.
- The *The New England Journal of Medicine* reported a study where over 15% of soldiers in Iraq suffered from Traumatic Brain Injuries (TBIs).
- TBIs are defined as sudden trauma to the brain that causes a varying extent of damages.
- TBIs are mainly caused by Improvised Explosive Devices (IEDs), vehicle accidents, and falls.
  - Limited TBIs resulted from bullets, shrapnel, and fragments.
Room for improvement is greatly needed to make helmet capable of protecting against these injuries:
- Padding system
- More supportive/better fit
- Facial protection

Current Advanced Combat Helmet used by US Army
Project Description

- Design a new helmet and padding system that provides facial protection and reduces the risks of TBIs.
Project Description (cont.)

- **Chin guard**
  - Wear to protect face
  - Lift up and lock when not needed

![Side View](image1)
![Front View](image2)
Project Description (cont.)

- Testing
  - Drop test from various heights
  - Same test used by DOT
  - Aimed to minimize G-force
# Budget

- **ACH** $500
- **Motocross Helmet** $300
- **Shell mold & components** $700
- **Padding layers** $350
- **Chin straps** $50
- **Test apparatus** $150

**Total** ~$2000

**Cost of product:** $420
Conclusion

This helmet will:

- Reduce TBI risk
- Provide a stable, comfortable, and secure fit
- Provide facial protection
- Be suitable for fast action situations
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Questions?