

# MAKE BME GREAT AGAIN

# ORTHOTIC SPLINT

## TEAM 17

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TEAM MEMBERS: UTSAV MALLA, SHIRSHAK ARYAL, NISCHAL KHANAL

# NEED STATEMENT

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- 50% of the developing world uses open fires for cooking, lighting, and heating, leading to 11 million hand burns each year, most of whom don't have access to proper post-surgery physical therapy which renders the surgical procedure useless leaving the victim with permanent disability.



# PROBLEM BACKGROUND

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- Due to the poor socio-economic condition of Nepal, the nation currently does not have enough resources and infrastructure to provide affordable long term physiotherapy access to all burn victims
- Without access to proper treatment the patient is left with life long disability which greatly hinders his/her ability to become an active and competent member of the community





# SOLUTION

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- Designing a wearable orthotic splint that can provide in home rehabilitation
- Affordable and Easily Accessible
- Eliminates the need for long term physiotherapy which is impractical and unaffordable
- Allows Nepali burn survivors a practical way to rebuild function and rejoin their community



# DESIGN METRICS

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- An orthotic splint that can be worn by patients at home
- A static progressive backbone that can be readjusted according to the stage of recovery
- Approximately 12-15 inches long and 6 inches wide
- Cozy soft material for comfort.
- Cost of each unit at about \$ 15
- Durability of 6-12 months

# CURRENT SOLUTIONS

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## PLASTER OF PARIS SPLINT

- NOT DURABLE
- STATIC
- INCONVENIENT FOR DAILY USE



## CUSTOMIZED THERMOPLASTIC

- EXPENSIVE
- REQUIRES EXPERTISE & RESOURCES THAT ARE OFTEN UNAFFORDABLE AND UNAVAILABLE



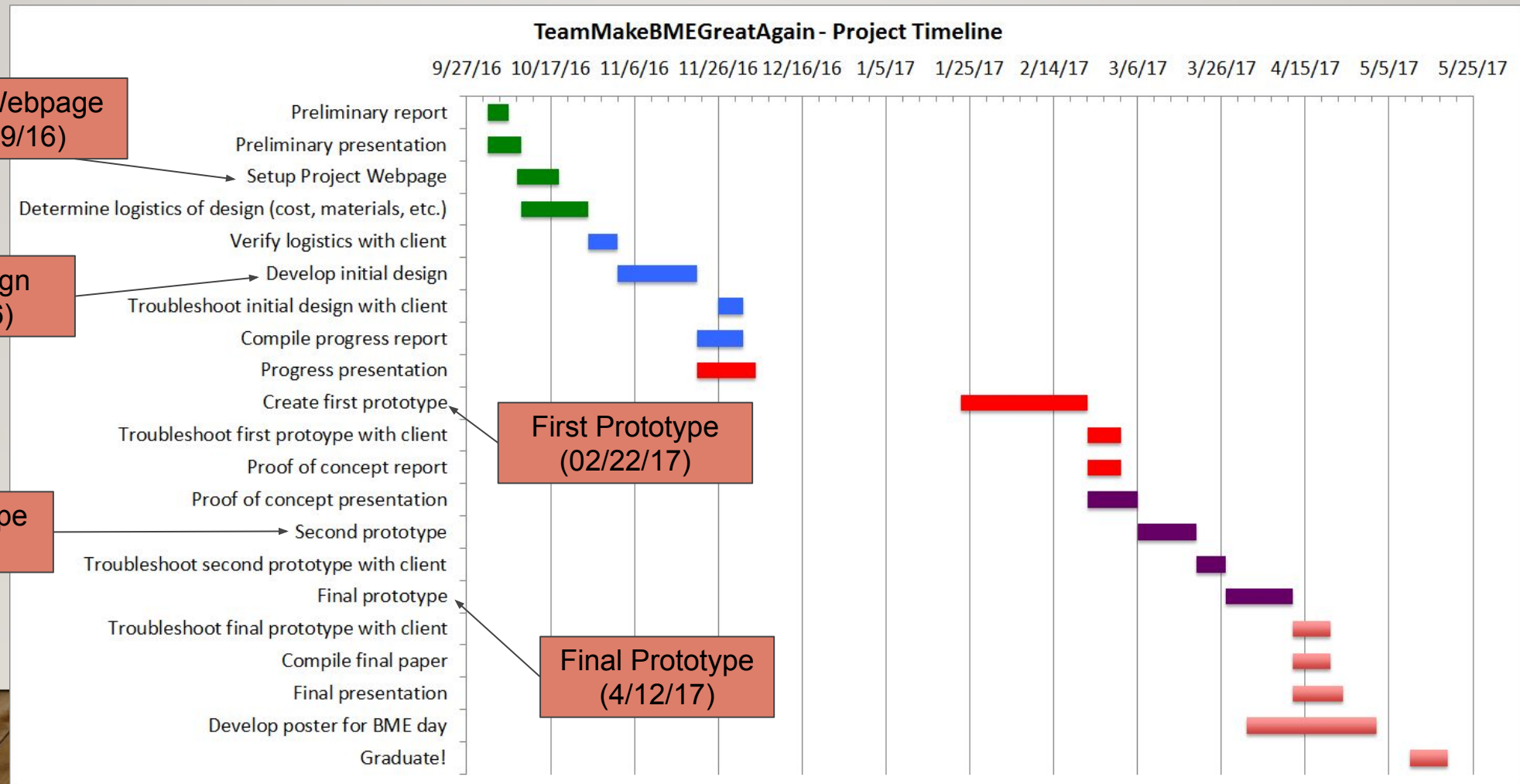
# WHY OUR PRODUCT WILL BE BETTER

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- Improved comfort and fit resulting in high patient compliance
- Improved durability and fix ability
- Low cost and affordable
- No expert supervision required
- More cost effective than long term physiotherapy
- Increased patient outreach



# PRELIMINARY DESIGN SCHEDULE





# TEAM RESPONSIBILITIES

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- UTSAV MALLA
  - Public relations and primary point of communication with client, market research, preliminary presentation, project notebook
- SHIRSHAK ARYAL
  - Research and development lead, progress presentation, project notebook
- NISCHAL KHANAL
  - Design and maintain project webpage, finalize major reports, proof of concept presentation, project notebook

# Sources

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<http://ucrtoday.ucr.edu/wp-content/uploads/2012/05/Woman-child-cooking.jpg>

<http://handherosplint.com/>

