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Deliverable 5.1.1
In-process BMD Hardware
“Works-Like” Prototype

VOTING PRINCIPLES

Goals for Hardware Prototype 5.1.1

7 *The voting system must guarantee a **private and independent** voting experience for all voters, including voters with a full range of types of disabilities and voters with limited English proficiency.*

- The BMD display should strike the right balance of large enough text for legibility, while still maintaining a sense of privacy.
- Voters should be able to cast their ballots privately and independently.

8 *The voting system must be **easy** for all voters to use, in particular, for voters with a full range of types of disabilities and voters with limited English proficiency.*

- The BMD should be able to adjust to provide a good voting experience, regardless of whether a voter is short or tall, able bodied or in a wheelchair.
- The paper path for inserting, verifying and casting the ballot should be intuitive to use and easily accessible to voters.

GOALS

Hardware Prototype 5.1.1 User Studies

1. Confirm our plan to align the **screen** in portrait rather than landscape **orientation**.
2. Evaluate **screen sizes** and select a target size range. 7 8
3. Characterize desired **range of motion** for the BMD: table height, screen height, screen angle, screen depth. 8
4. Evaluate potential **paper path options** and down-select to a small subset so that paper handling development may begin. 8
5. Question or plan for an **integrated ballot box**. Would a communal box be preferred? 7

CHANGES FROM PHASE 2



Phase 2 Prototype

DISPLAY SIZE

18.4" 12.3", 15.6" or 18.4"

DISPLAY ORIENTATION

Landscape Portrait or Landscape

PAPER PATH LOCATION

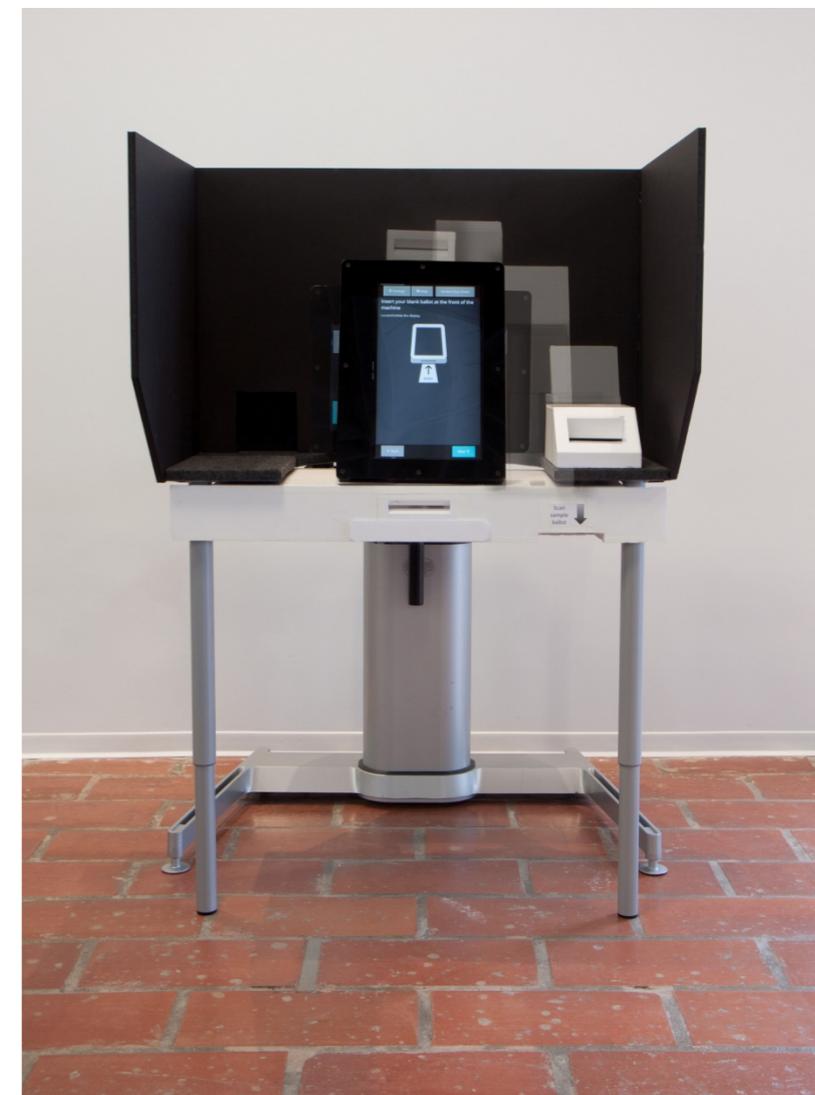
Below display Multiple location options

TABLE HEIGHT

30" knee clearance 21-37" knee clearance

ISB SCANNER LOCATION

Front face next to paper path slot Below table



5.1.1 Prototype

BMD PROTOTYPE 5.1.1

Overview of features

- 1 Touchscreen display running UI prototype 3.1.1
- 2 Monitor arm mounts display to base, allowing angle, height, orientation, and depth adjustment.
- 3 Paper path slot
- 4 Privacy screen
- 5 Placeholder location to scan ISB
- 6 Height adjust mechanism (retrofit from an existing sit/stand desk product)



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VSAP Principles: EASY, PRIVATE & INDEPENDENT

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18.4" Display



15.6" Display



12.3" Display

BMD PROTOTYPES 5.1.1

Three screen size options

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28" Knee Clearance (Can go as low as 21")



37" Knee Clearance

BMD PROTOTYPE 5.1.1

Height Adjustment

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Portrait, Upright (goes vertical)



Portrait, Reclined (goes -10 degrees)



Landscape, Upright (goes vertical)



Landscape, Reclined (goes -10 degrees)

BMD PROTOTYPE 5.1.1

Screen Adjustment

BMD PROTOTYPE 5.1.1

Paper Path Options

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BMD PROTOTYPE 5.1.1

Paper Path Options: Slide Up Above Screen

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BMD PROTOTYPE 5.1.1

Paper Path Options: Slide In Above Screen

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BMD PROTOTYPE 5.1.1

Paper Path Options: Slide In Below Screen

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BMD PROTOTYPE 5.1.1

Paper Path Options: Slide Up Beside Screen

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BMD PROTOTYPE 5.1.1

Paper Path Options: Slide Down Beside Screen

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BMD PROTOTYPE 5.1.1

Paper Path Options: Slide In Beside Screen

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BMD PROTOTYPE 5.1.1

Paper Path Options: "Cash Register" Position

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NEXT STEPS

Testing, Feedback, Conclusions

The BMD hardware prototype has been evaluated in a qualitative research setting with voters. The voters were selected to fill interesting or extreme ranges of the population who will use a future production version of the BMD.

The research findings and design conclusions can be found in Research Report # 1.

Per the project plan, subsequent “works-like” models will be fabricated to prove functionality and evaluate design alternatives for a number of detailed technical and usability topics.
