

Engineering



Motivation

Most survey platforms use **GUIs** or **spreadsheets** to define survey content. This approach limits:

- Reproducibility
- Version Control
- Collaboration

Few open-source platforms exist, resulting in:

- Limited Data Control
- High Costs
- Opaque Source Code

Introducing surveydown



A flexible, open-source platform for making programmable, markdown-based surveys

Features:

- **1.Open-Source** with R, Shiny, Quarto, and PostgreSQL
- 2.Reproducibility from Code
- **3.Programmable** Interactivity via Shiny

Technologies

Control Logic Data Storage **S**↓ surveydow

Web Framework

- Design survey as **Quarto** document with markdown and R code.
- Render into **Shiny** app.
- Store response data in **PostgreSQL** database.
- R package **surveydown** provides control logic.

surveydown: An Open-Source, Markdown-Based Platform for Programmable and Reproducible Surveys

Pingfan Hu, Bogdan Bunea, John Paul Helveston

Example S survey.qmd ```{r} library(surveydown) ::: {.sd_page id=welcome} Welcom # Welcome to our survey! ```{r} What's you sd_question(OAdélie = "penguins", Chinstrap = "What's your favorite penguin?", label option = c(Gentoo = "adelie", 'Adélie" = "chinstrap", "Chinstrap" "Gentoo" = "gentoo" sd_next() ::: {.sd_page id=end} Made with su This is the last page of the survey. sd_close() app.R This is the last db <- sd_db_connect()</pre> ui <- sd_ui() server <- function(...) {</pre> $sd_server(db = db)$ shiny::shinyApp(

Made with su

Comparison with Exis

Platform	User Interface	Reproducible	Cost	
Google Forms	GUI		Free	
REDCap	GUI		$\mathrm{Free}/\mathrm{Pe}$	
Qualtrics	GUI		Paid	
Sawtooth	GUI		Paid	
CASIC Builder	GUI		Paid	
SurveyCTO	GUI		Paid	
QDS	GUI		Paid	
LimeSurvey	GUI		Free/P	
Open Data Kit	XLSForms		Free/P	
oTree	GUI, Python		Free/P	
SurveyJS	GUI, JavaScript		Free/P	
formr	XLSForms, markdown, R		Free	
shinysurveys	R, CSV		Free	
surveydown	markdown (Quarto), R		Free	
Legend: \blacksquare = Yes, \blacksquare = Partially, \square = No				

ui = ui, server = server

Department of Engineering Management and Systems Engineering

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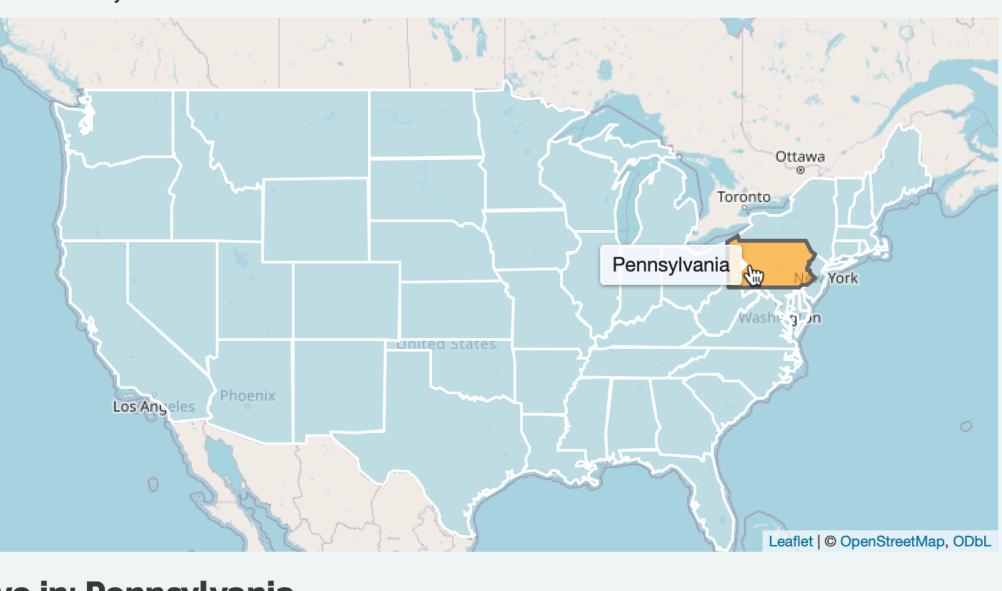
School of Engineering & Applied Science

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Features

- All-in-one platform for:
- survey designers
- survey respondents
- data analyzers
- Support for 13 question types.
- Automatic time stamps recording.
- Require question responses.
- Comprehensive restoration via cookies.
- JRL parameters and redirection.
- Customizable language for system nessages.
- Bootstrap themes and customizable CSS themes.
- Custom interactive question.

stom interactive question, e.g. map the state you live in:



ve in: Pennsylvania

For more details of features, question types, and templates, visit:

surveydown.org





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