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“GoBabyGo!” – Rehab Engineering to Make Children Mobile

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“GoBabyGo!” – Rehab Engineering to Make Children Mobile

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Background

What is GoBabyGo?

- GoBabyGo! chapters modify ride-on-cars for children with movement difficulties
- These cars are modified to be:
 - Remote Controlled for caretakers
 - Usable with one hand
 - Specialized for accommodations

What Issues do these cars face?

- Limited in space
- Cars are usable for a couple months up to a year
- Mechanical maintenance

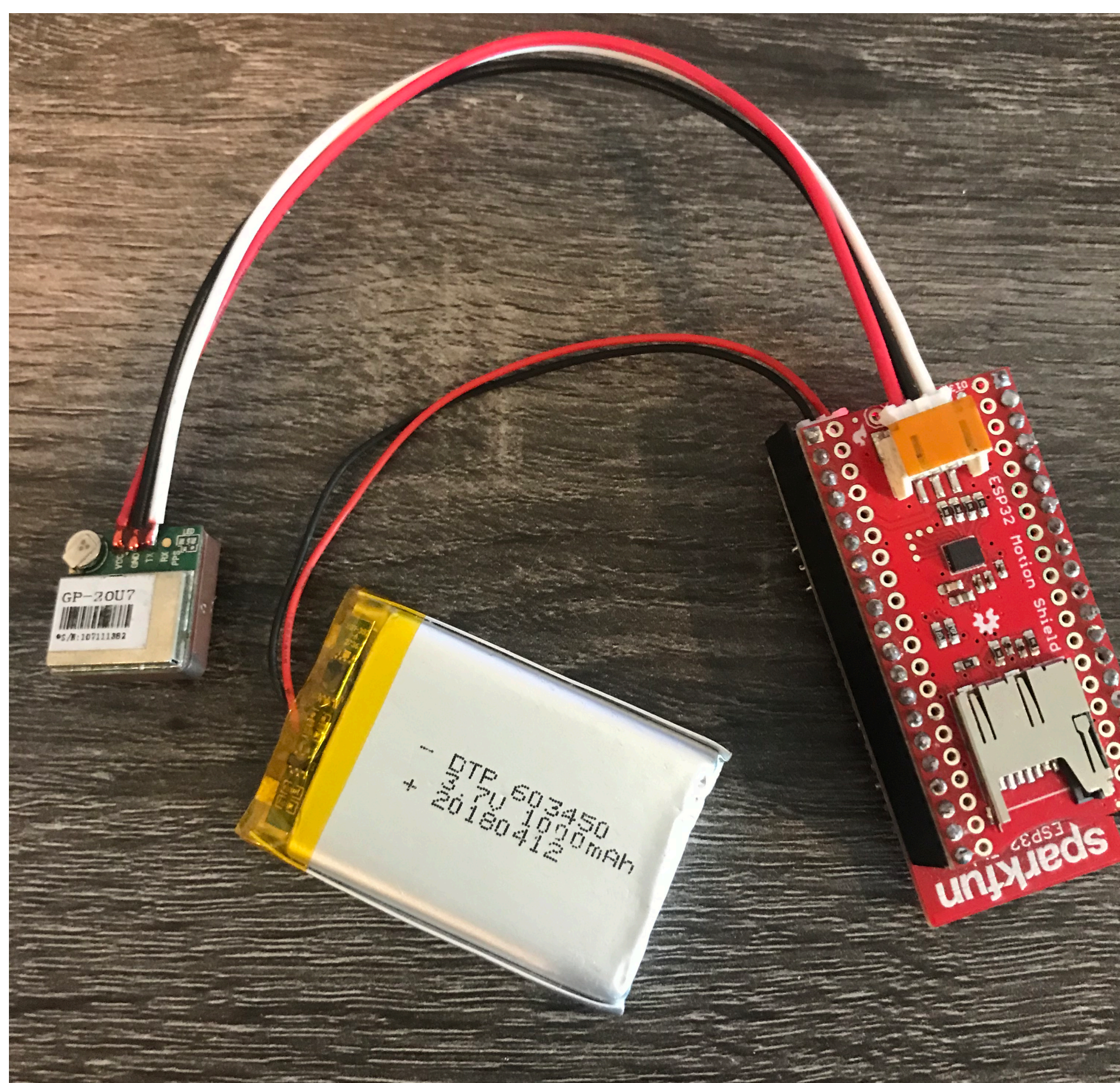


Figure 1- ESP-32 Module used for car data collection

Objectives

Obtain IRB Approval for Testing

Measuring Qualitative and Quantitative Car Usage

- For qualitative feedback, surveys were created to measure:
 - Location of car usage (Houses, Parks, School, etc.)
 - Reasons of car usage (PT, Reward, Self Exploration, etc.)
 - Child satisfaction/behavior
 - If accommodations being met
- For quantitative feedback, we created an Arduino programmed device to measure:
 - Usage time
 - Self exploration vs remote controlled
 - Frequency of use
 - Distance

Make observations on usage for proposing adjustments

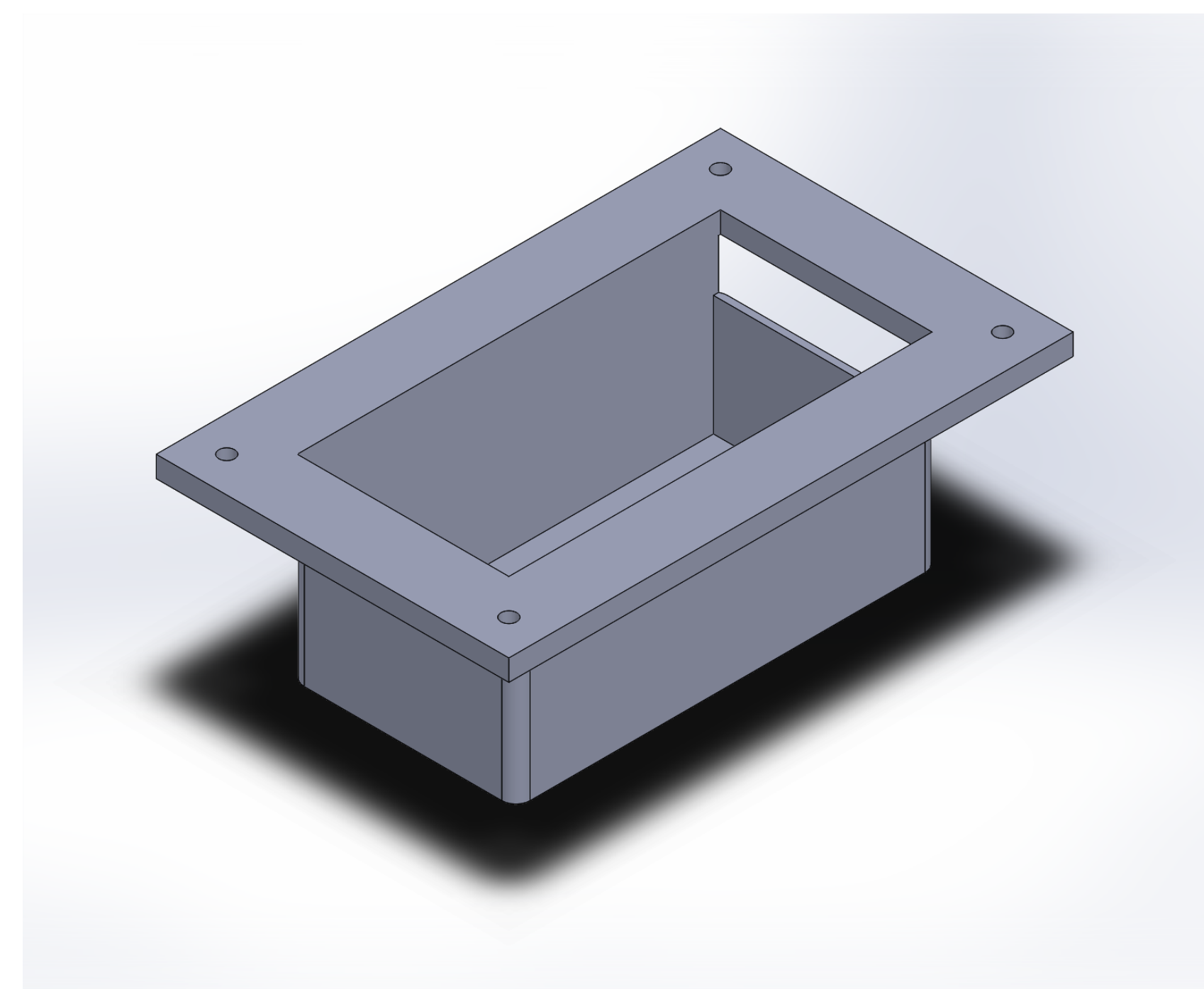


Figure 2 - Removeable car mount CAD Drawing



Figure 3 - Example GoBabyGo! Ride on Car⁽¹⁾

Going Forward

Resources to collect data are ready

- Surveys and car units are available

Finding Participants

- Looking for applicants through Madonna Rehabilitation center in Lincoln

Design Process

Design of surveys were made to be accommodating:

- Surveys given at start and end of study period
- Simple Questions

Design for car module included extra consideration:

- Compact ESP32 Thing board
- Runs Arduino IDE
- Instructions for installation
- Removable

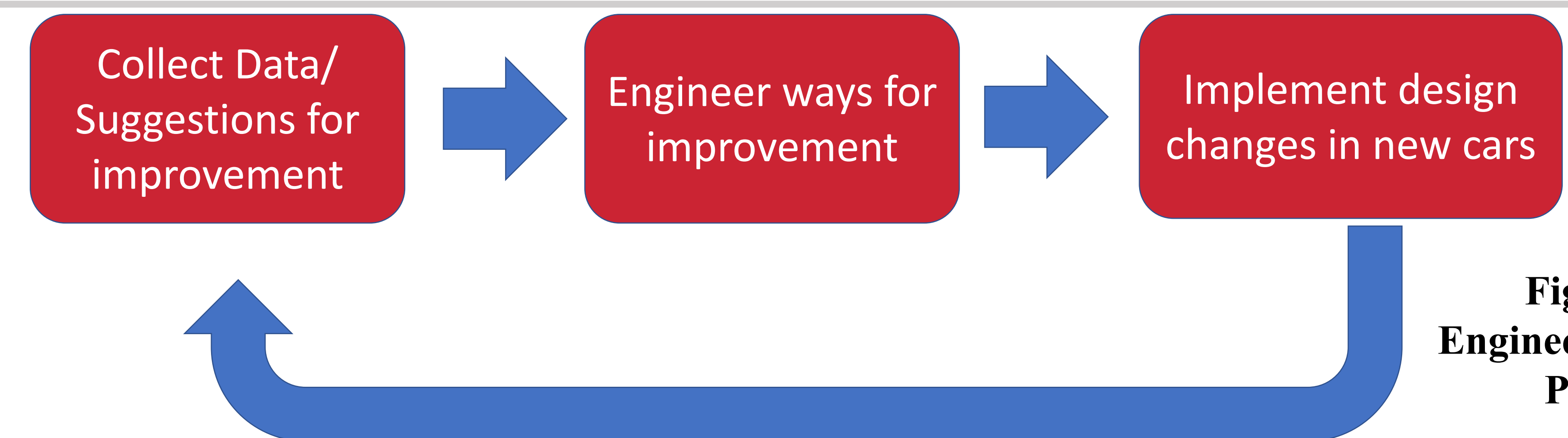


Figure 4 - Engineering Design Process

Acknowledgements

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1. Photo Credit: “GoBabyGo! Ride on Car.” *Smile-Center.org*, 2018, www.smile-center.org/.