

WHAT IS TAP?

The **Technology Ambassadors Program (TAP)** is a research-based STEC course created with the intention of helping students become more technologically inclined, and to become familiar with basic programming concepts through technologically engaging projects.

OUR PROJECT

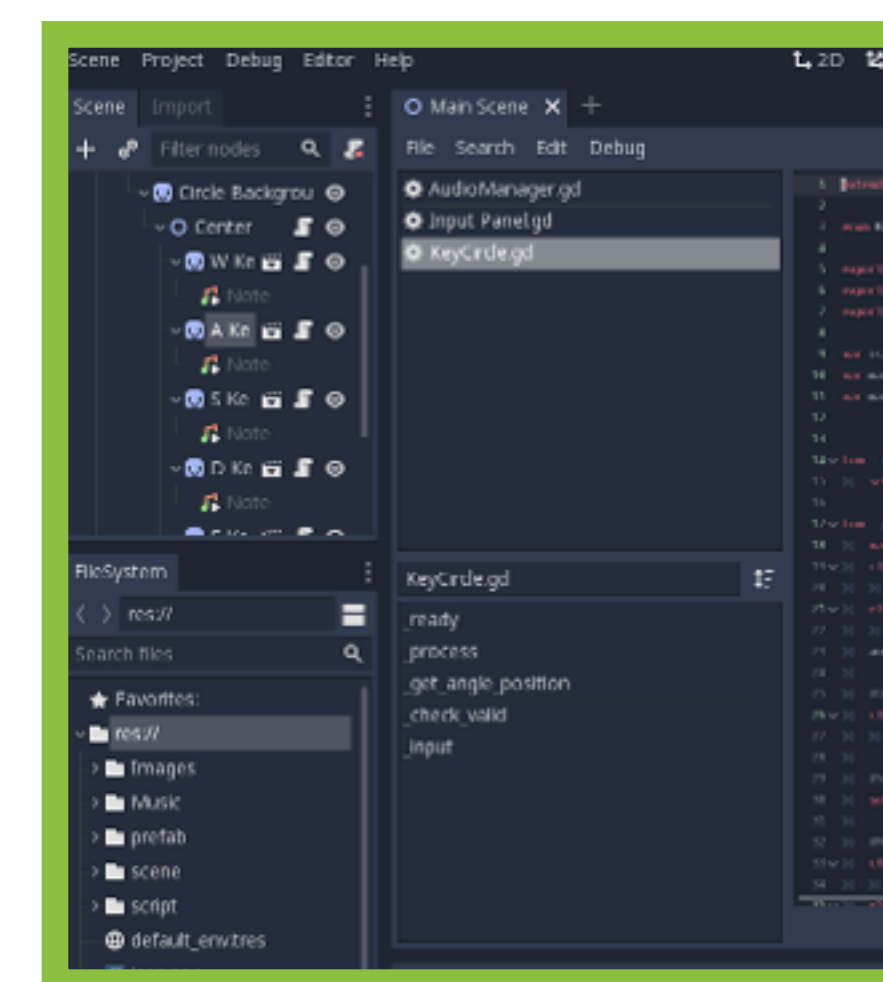
The **Synthetic Instruments** project allows students to design their own instrument using a Makey Makey circuit board, cardboard, wires, and conductive materials, then play it using a program written in the Godot game engine.

PROJECT GOAL



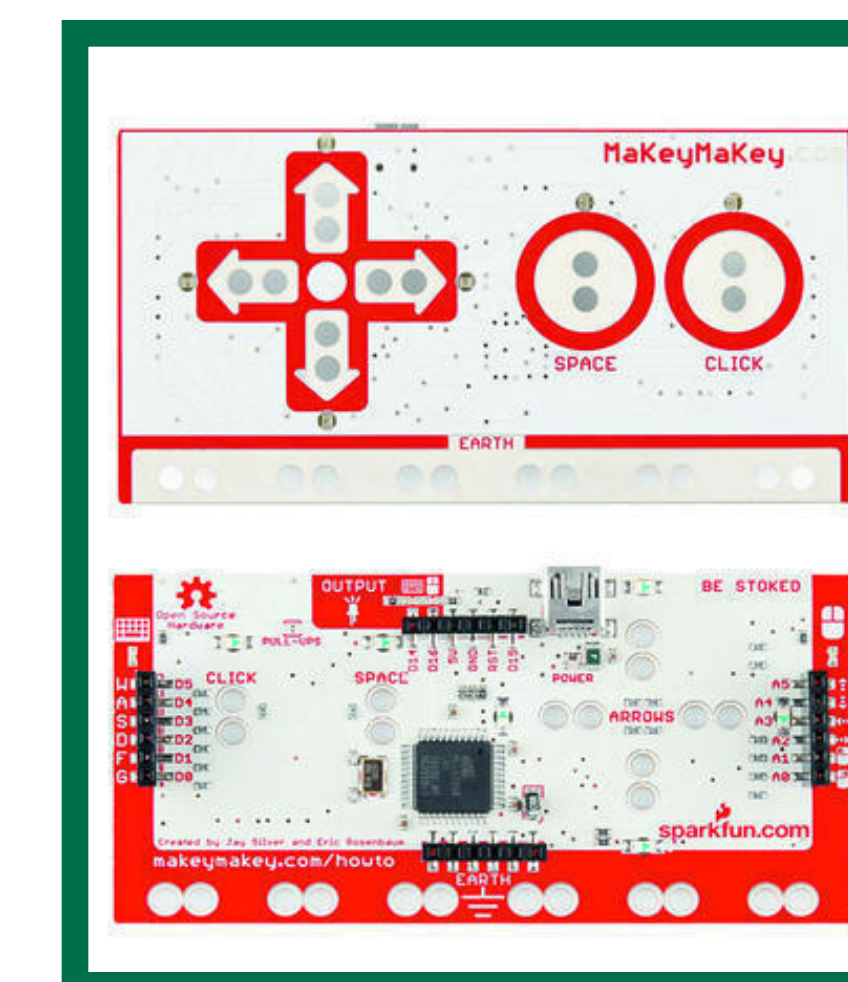
We aim to help students become comfortable with basic **programming concepts** and **new technologies** through a project that presents these ideas in an engaging, easy-to-learn way. Synthetic instruments add a **fun**, physical element to the task of learning about loops and methods, while also introducing them to two new technologies.

TECHNOLOGIES



Godot Game Engine

Used to add program functionality and create the user interface

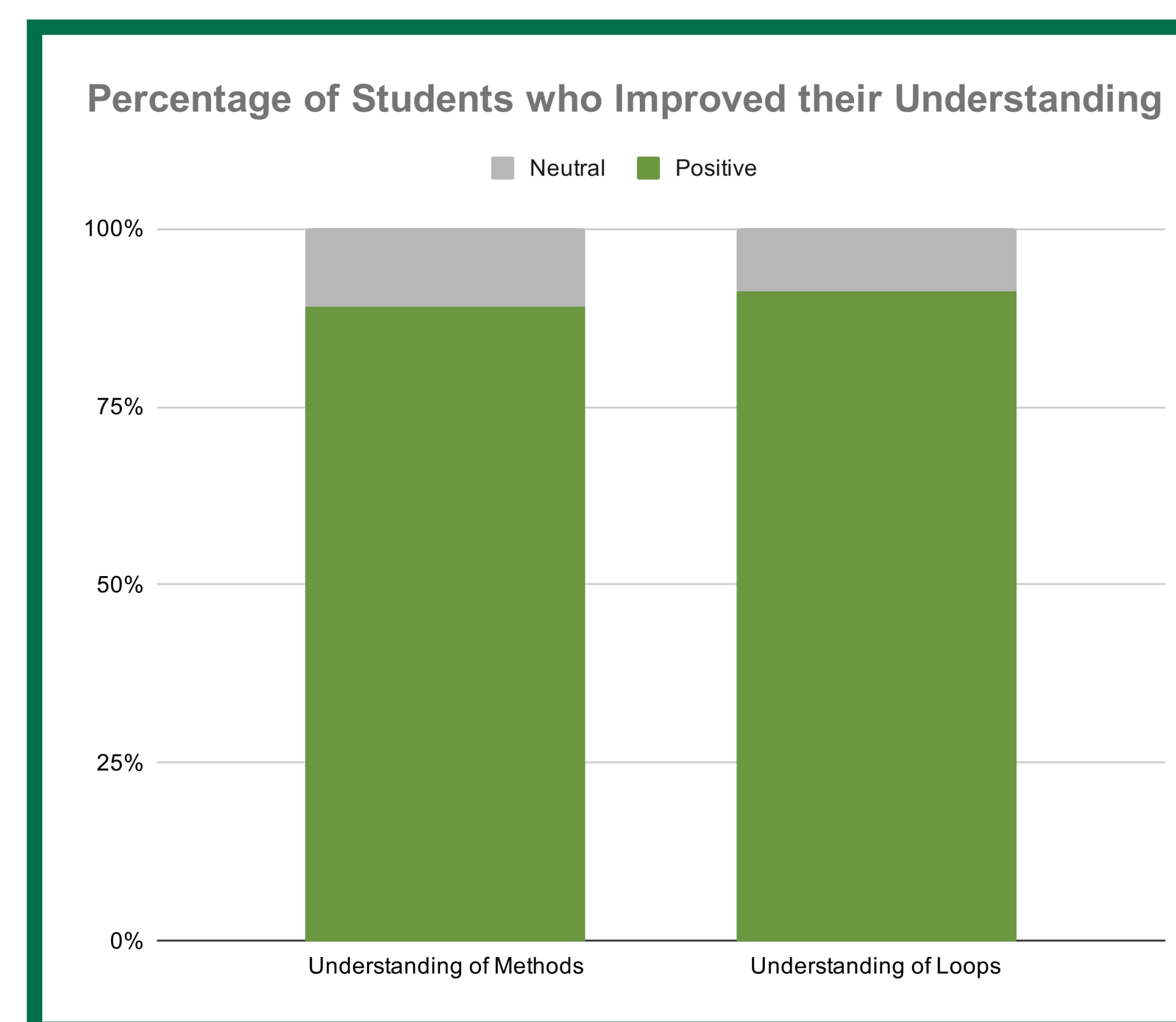


Makey Makey

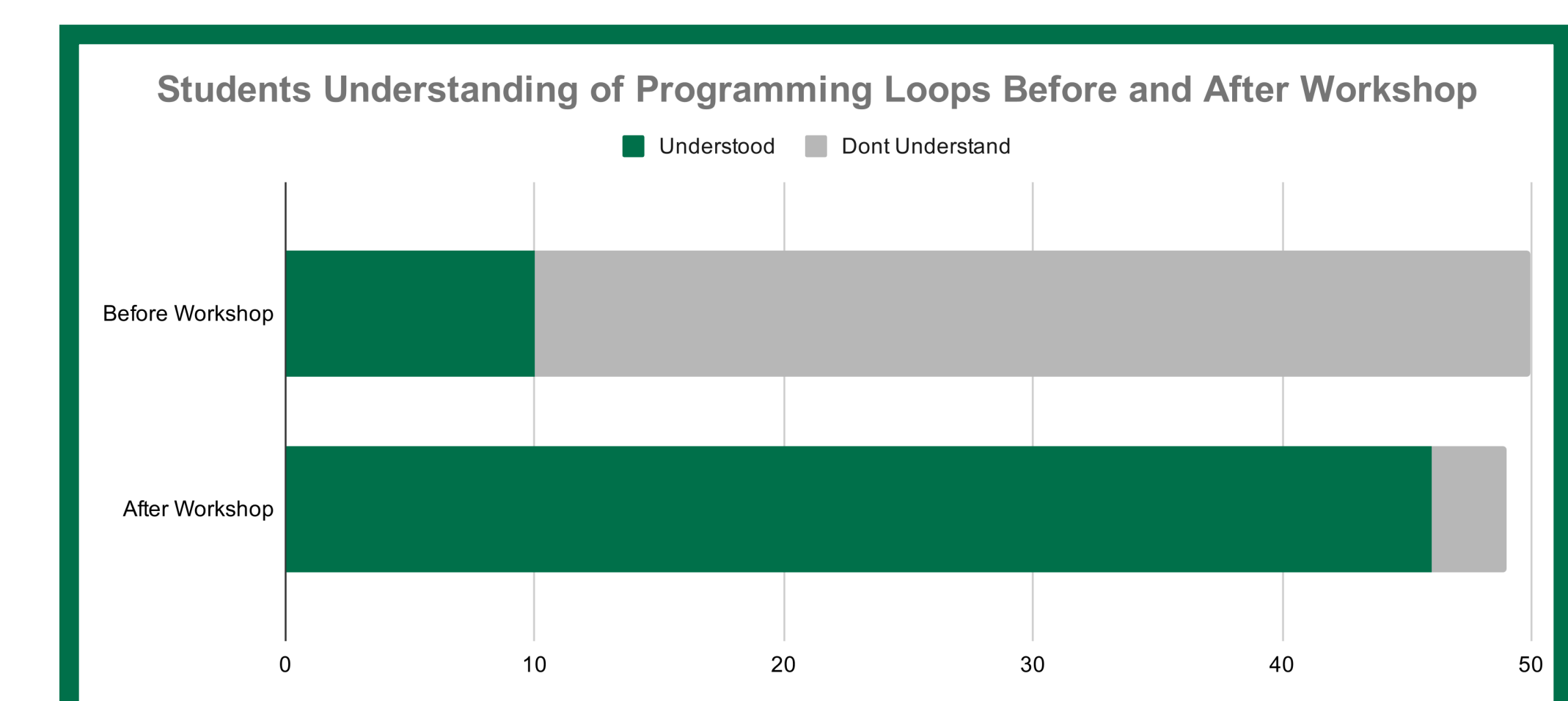
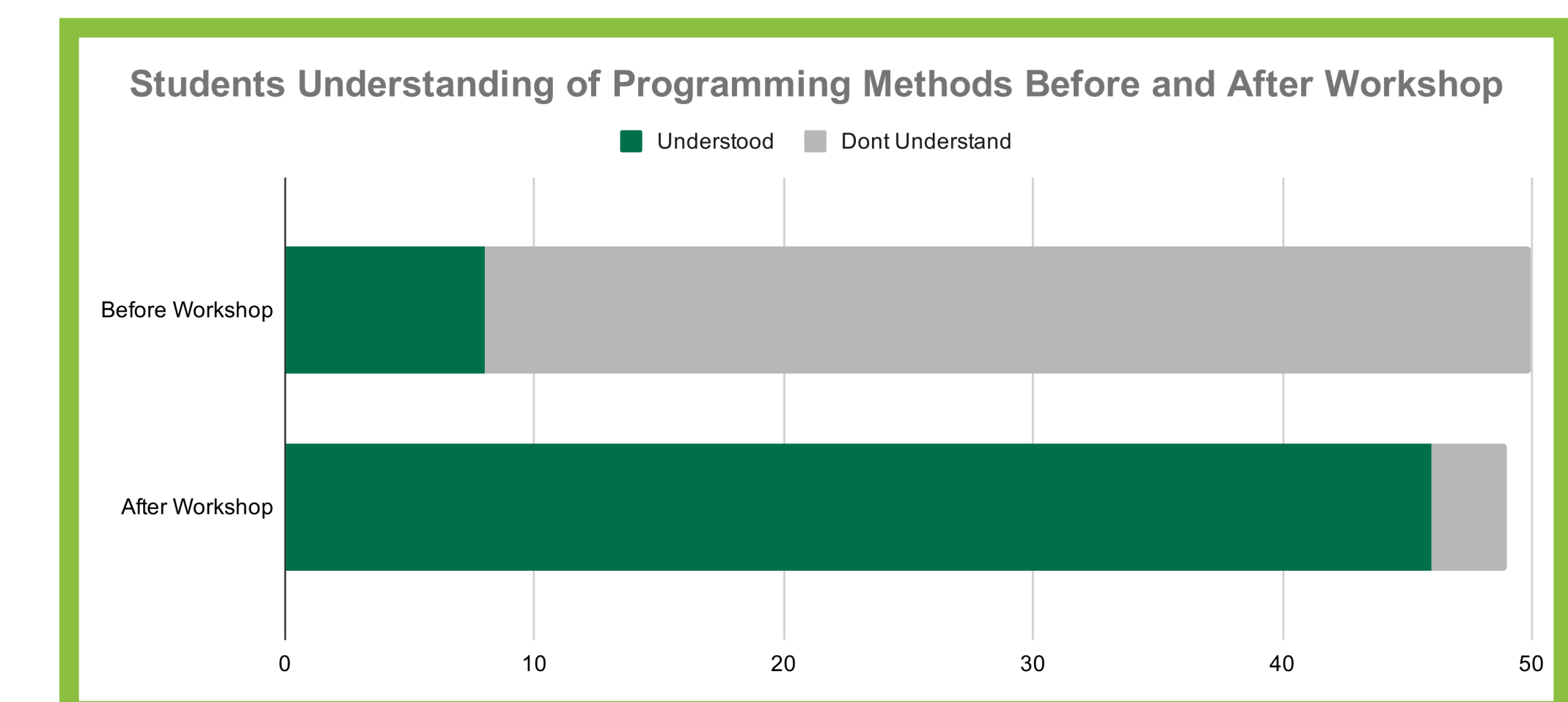
A circuit board that, when the circuit is completed, functions as an alternative keyboard input

RESULTS

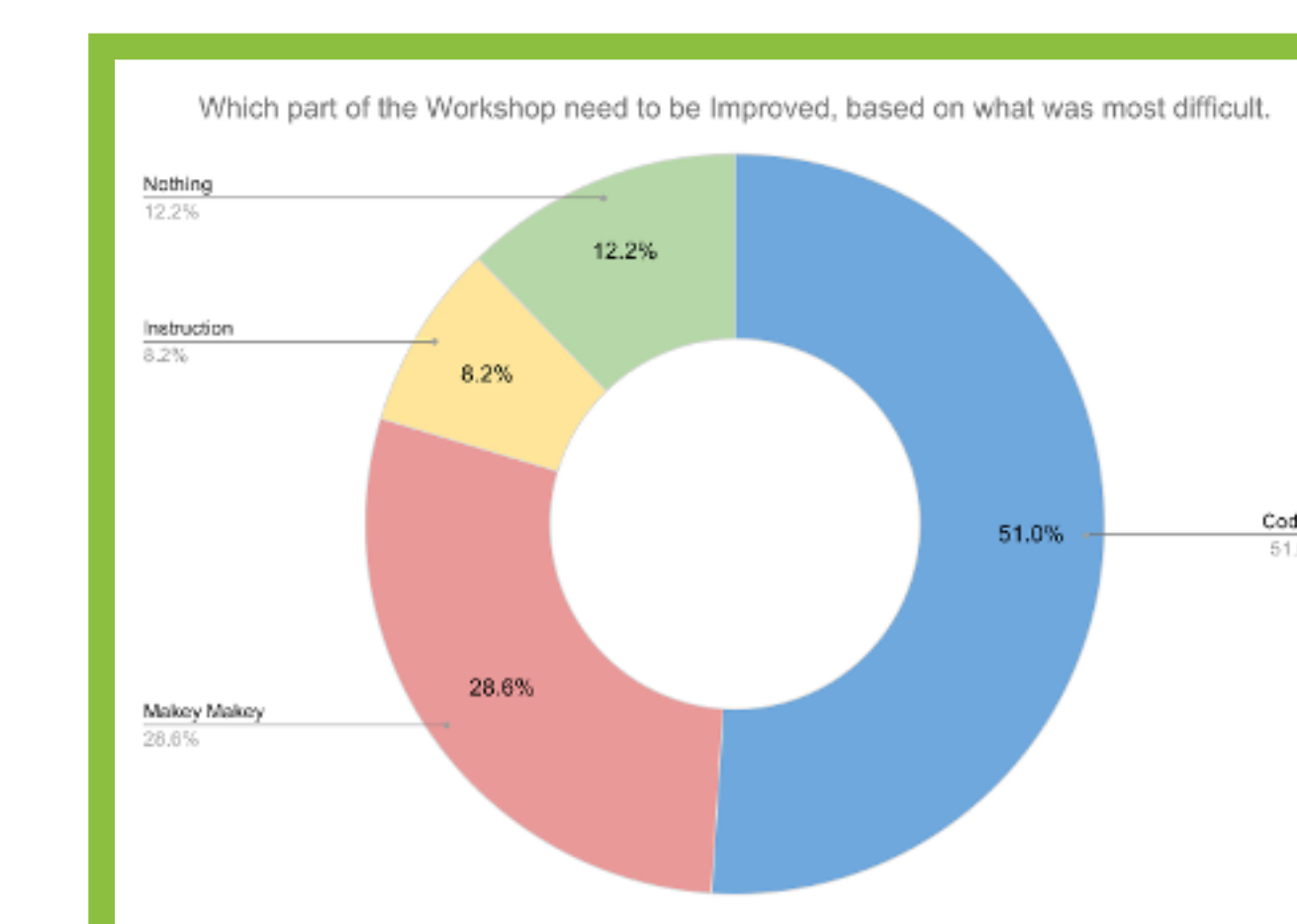
Workshops were held in **ITEC 1001** classes, where students built instruments, then used the Godot engine to manipulate code and gain an understanding of loops and methods.



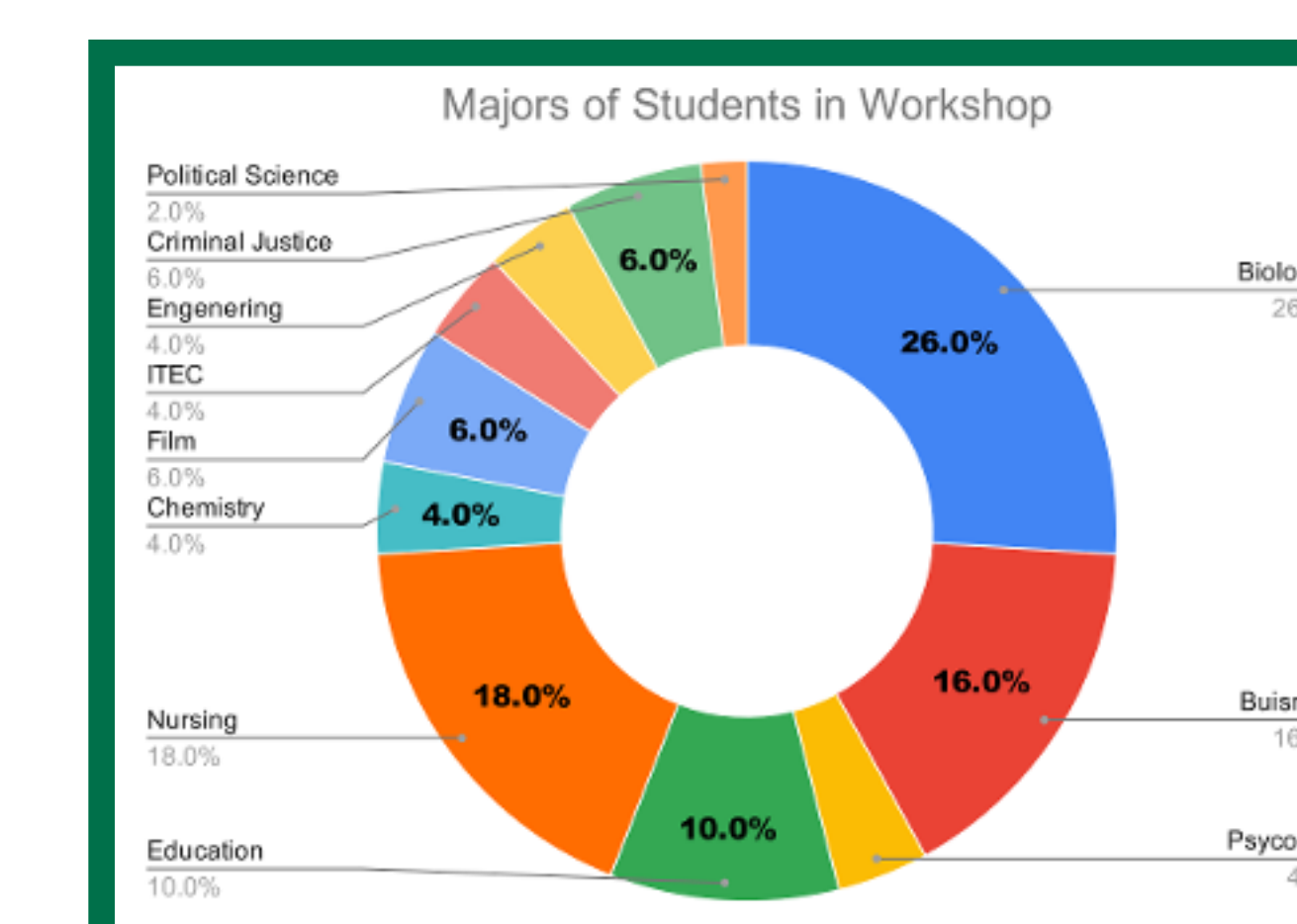
89% and **91%** of students improved their understanding of methods and loops, respectively.



- **8** students understood methods **before** the workshops
- **46** students understood methods **after** the workshops
- **10** students understood loops **before** the workshops
- **46** students understood loops **after** the workshops



- 51% of students thought the coding was hardest to **learn** in the moment, yet most managed to grasp an **understanding** of the concept



- 96% of students across all workshops were **not** ITEC majors
- Improvement in understanding among this group proves the Synthetic Instruments to be a **successful** tool