# **RaspiGuard Progress Report Week 6**

**Executive Summary**

Project RaspiGuard is currently on schedule and continuing with no significant difficulties. Project Is-It-Moist has been successfully integrated. The website design is complete and currently online. The hardware schematic design is completed and is currently being used to develop a custom PCB. Plans going forward include creating and testing PCB, Android application development, and hardware testing and scripting.

**Project Overview**

|  |  |  |
| --- | --- | --- |
| **Task** | **Progress** | **Developer** |
| Integrating Project Is-It-Moist | 100% | Vivek Socrates |
| Hardware Schematic | 100% | Vivek Socrates |
| PCB Schematic | 80% | Heakeme Williams |
| PCB Testing | 0% | Heakeme Williams |
| Website Design | 100% | Karel Tutsu |
| Website Testing | 70% | Karel Tutsu |
| Android Application Design | 50% | Karel Tutsu |
| Android Application Testing | 30% | Karel Tutsu |
| Hardware Scripting | 50% | Vivek Socrates |
| Hardware Script Testing | 50% | Vivek Socrates |
| MySQL Server Setup | 100% | Karel Tutsu |
| Case Design | 25% | Heakeme Williams |
| Case Assembly | 0% | Heakeme Williams |
| Prototype Device | 0% | Full Team |
| Prototype Device Testing | 0% | Full Team |
| Documentation | 20% | Full Team |

**Budget Overview**

|  |  |
| --- | --- |
| **Component** | **Cost** |
| Raspberry Pi 3 Model B | $48.98 |
| Raspberry Pi Power Adapter | $16.95 |
| ADATA Premier 8GB microSDHC UHS-I Class 10 | $8.99 |
| ADATA microReader Ver.3 microSDHC | $4.99 |
| adafruit PiTFT Plus 480x320 3.5" | $44.95 |
| adafruit ADS1115 | $14.95 |
| SparkFun Soil Moisture Sensor | $5.95 |
| Photo Cell (CdS Photoresistor) | $0.95 |
| Magnetic Contact Switchs | $3.95 |
| Piezo Buzzer - PS1240 | $1.50 |
| GPIO 2x13pin Ribbon Cable | $2.95 |
| Male To Male 2x13pin Header | $1.75 |
| Jumper Wire Cables | $1.95 |
| Raspbian Stretch with Desktop (OS) | $0.00 |
| **TAX** | **$20.65** |
| **TOTAL** | **$179.46** |

**Current Progress**

**Vivek Socrates**

Successfully integrated project Is-It-Moist into RaspiGuard. Light sensor, buzzer and LCD touchscreen display have been added to increase functionality. Hardware schematic has been created and is currently being tested. Currently writing and testing hardware scripts for accurate sensor readings.

**Karel Tutsu**

MySQL server setup and updated to support current hardware readings. Website template designed and created. Awaiting any functionality updates to modify website template. Currently testing website and working to adapt previously created android application to match current hardware specifications.

**Heakeme Williams**

After recently joining the team, is quickly becoming familiar with project details, and tasks. Undertaken the tasks of designing, creating and testing a custom PCB build based on hardware schematic. Currently working on the final stages of design and development for initial PCB prototype.

**Challenges, Problems and Troubleshooting**

**Vivek Socrates**

Initial analog to digital converter MCP3008 and adafruit PiTFT incompatible for simultaneous use. Issue resolved by changing converter to ADS1115.

Moisture sensor probe was tested and determined to be subpar. Probe has been replaced with superior product manufactured by SparkFun.

adafruit PiTFT having compatibility issues on Rasbian Stretch. Issue is currently being investigated, possible resolution may involve using older Rasbian operating system.

**Karel Tutsu**

MySQL database was initially designed to accommodate only two sensor readings. Tables and database have been updated to accommodate new hardware functionality.

Website template needed multiple versions due to hardware functionality being undetermined. Issue is resolved due to new definitive hardware specifications.

Previously written PHP scripts to access database are obsolete. New scripts currently in progress.

**Heakeme Williams**

Unfamiliarity with Fritzing software that was used in creating hardware schematic design. Issue being resolved by exploration of the software and online research.

Conversion of hardware schematic to creating PCB schematic using EAGLE software proved problematic due to default component libraries lacking necessary components. Resolved by searching for custom libraries online.

With updated functionality, PCB design needed to reflect new changes. Changes to PCB are currently in progress.

**Future Development**

The hardware is being assembled and tested using python scripts. PCB is nearing end of design phase and entering initial prototype phase. PCB will undergo extensive testing before final PCB is designed and produced. Website is being finalized and android app development due to begin.