



CRYPTO MINING

Initial Set Up and R&D for Immersion Cooling

For Aaqil Aziz.

January 21, 18

Email

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CRYPTO MINING

Proposal No: TWC 17-0059

Project Name: Bit coin Mining

INTRODUCTION

We at TWC Innovations welcome the opportunity to work on crypto mining (BTC) project with you and develop a cutting edge solution to mine in an efficient way. TWC Innovations will be providing you with the finest quality while ensuring the product is delivered on time. TWC Innovations offers the highest quality product development for affordable price rates. The reason why we are able to provide you with the best quality rates in the industry is that we minimize the product development cost by only recruiting the needed amount of well trained, experienced engineers to the team who will be solely working on this project to meet timeline and the standards expected of TWC products.

We look forward to working with you on this project.

PROJECT OVERVIEW & OBJECTIVES

The Bitcoin Mining project as discussed with you will comprise the following objectives for the first phase of product development. Please note that we have mentioned the timeline details below as a separate heading.

Objectives: TWC Innovations Crypto mining pilot project has two main objectives;

- **The initial set up for the 5 Antminer S9.**
 1. Initial set up for the Network.
 2. Initial set up for ISPs with a backup ISP.
 3. Initial electrical & wiring set up.
 4. Initial set up for cooling and exhausts.
 5. Project software installation and monitoring
 6. Project Weekly report to measure the analytics & numbers of the initial pilot project (during testing phase)
- **Product engineering objective (Research & Development)** - First phase of R&D will include to find the right immersion cooling system for the miners.
 1. Option A - Water Cooling
 - We will be creating a system which will be using the “Water Cooled PC” technology that would save us funds in the scaling up process. Basic idea would be to run a radiator with a pump that would have a cooling liquid inside to cool the 3M Novec Fluid vapor that gets vaporized during the cooling process of the ASIC chips. Which is more efficient and save money in the long run and which would be more efficient running a normal out of the box stock S9 Miner.
 2. Option B - Freon Gas
 - Setting up a copper coil that would stay inside a vacuum sealed chamber with multiple ASIC Chips submerged in the 3M Novec Fluid. That would get vaporized because of the heat produced by the ASIC chips. Which will be cooled by the copper coil that has Freon Gas which running through them. The main reason we would need to vacuum seal the container would be to avoid contamination with air particles and water particles in the air, which would make the Novec fluid loose it's nonconductive electrical properties.

Note - We will be going ahead with option A as discussed as the first option, since option A has a clear advantage to achieve our objective, Option B will also resolve the issue and to achieve our set objective of setting up an immersion cooling system but the results will be comparatively expensive in the long run. We will on go for option B if option A fails to give expected results.

Conclusion and the Final Result - Our main goal for the Research and Development project would be to cut down additional costs and resources during the scaling up process with 700+ units in the future. That would save the initial project millions in funding and the energy factor as well. The mining operation would also cut down noise pollution, energy wastage, extra space requirement and maintenance (no dust or dirt).

TIMELINE

The complete Product development will require a period of 70 working days (approximately Three months & two weeks). The timeline mentioned includes all aspects of the Product development of this project including:

Stages of the Project	Timeline (Working Days)
<u>Product Set up</u>	
Product Ordering	15
Project initial set up	10
Project testing	25
Total time for initial set up	50
<u>Research & Development (Immersion cooling)</u>	
Product ordering	15
R&D Phase 1	15
Testing	5
R&D phase 2	15
Testing	5
Project Implementation	10
Total Time For R&D	70

But on the special request of the client, we will try to achieve the objectives mentioned above beforehand if the order for a batch is purchased. Please note that we will have to make orders for special equipment and 3M Novec Engineering Fluid for the Research and Development and it will require 2-3 weeks. We can cut down that time if we can confirm the order three weeks prior to the project start date.

- Please note that the development period might subject to change if the core outcome of the project is changed by the Client.
- The time taken by the client to approve the work presented by TWC Innovations (Pvt) Ltd and the time taken to submit any project related document and payment for the project will not be included in the timeline provided by TWC Innovations (Pvt) Ltd.

THE COST FOR THE PILOT PROJECT AND R&D

Description	\$(USD)
Initial Set Up Cost	\$ 4,350.00
Research and Development	\$ 15,000.00
Total Cost	\$ 19,350.00

TERMS & CONDITIONS

- Initial set up will commence after receiving the full payment. (\$4350)
- Research and Development Phase of the Project will commence after receiving 60% (\$15,000) of the initial cost 2 weeks prior and 20% x 2 payments last week of every month after the project is initialized.
- Project Development confirmation will need to be given 3 weeks prior to the start date and the payment should be done before three weeks.
- The R&D project outcome shall be used for the future scaling up process of the Crypto Mining Project.
- Sample chips of Ant miners that are used for Research and will be considered as scrap and will be used for different R&D purposes.
- The ant miners given by the client shall not be used for any other purposed than crypto mining project
- TWC will not undertake insurance arrangement for the antminers as agreed and therefore will not take any liability.
- Most efficient and the cost saving option would be used in the future, from the two earlier mentioned Research and Development options.
- Client understanding that R&D results can be negative or positive results when tested and feedback given.
- By signing this proposal, you are agreeing that any communal information is confidential and will not be shared with any third parties without written consent from TWC Innovations (Pvt) Ltd and the Client; Aaqil Aziz.

Revision History (for company operational purposes)

Date	Description	Author	Comments

Document Approval

This document has been completely read, accepted and approved by the following personnel:

Date	Printed Name	Title	Signature